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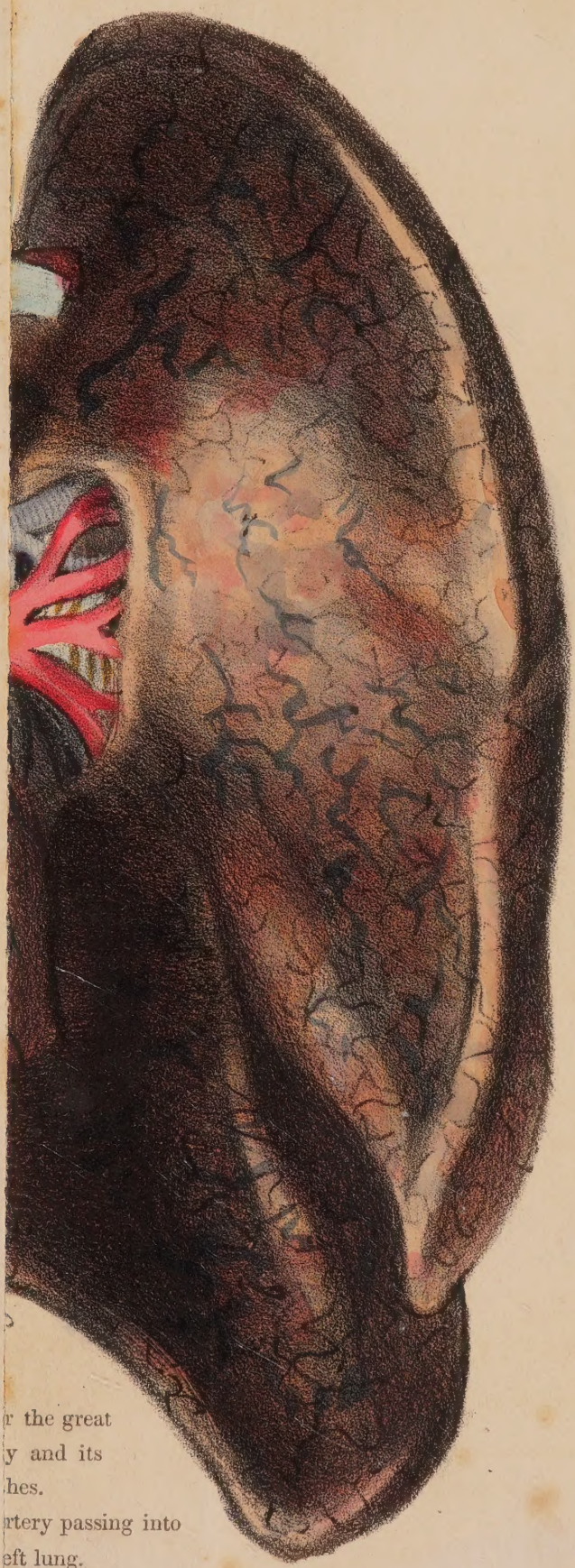

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PRACTICAL OBSERVATIONS

ON THE EFFICACY OF

MEDICATED INHALATIONS

IN THE TREATMENT OF

PULMONARY CONSUMPTION,

ASTHMA, BRONCHITIS, CHRONIC COUGH,

AND OTHER

DISEASES OF THE RESPIRATORY ORGANS,

AND ALSO

AFFECTIONS OF THE HEART.

BY

ALFRED BEAUMONT MADDOCK, M.D., SURGEON, &c.

Illustrated with Cases and Explanatory Plates.

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OF THE LATE

HENRY MADDOCK, M.P.,

BARRISTER-AT-LAW,

AUTHOR OF THE "PRACTICE OF THE COURT OF CHANCERY," "CHANCERY REPORTS,"

"LIFE OF LORD CHANCELLOR SOMERS," &c., &c.

A SLIGHT TRIBUTE OF

REVERENTIAL FEELING AND UNCEASING AFFECTION,

BY

A DEVOTED SON.

PREFACE.

The Author of the following pages has devoted, for many years, his particular attention to diseases of the lungs and heart, and the practicability of producing healthy changes on diseased structures of those organs, by the inhalation of vapours, containing the active or curative principles of medicinal substances. During the period referred to, the Author noted down, in his "Case Book," the results of this mode of treatment, and, in the course of his readings from time to time, added, from various sources, the opinions and experience of other practitioners, who had adopted a somewhat similar treatment. These scattered facts and observations he has now revised and

collected in the present Treatise, with the hope of directing more general attention to this simple and efficient remedial agent, which has been so unaccountably overlooked by a great majority of his professional brethren.

As it is probable that this work, from the interest and importance of the diseases on which it treats, will be perused by many non-medical persons — for anything calculated to throw a ray of light on their treatment, or hope of arresting their hitherto unchecked career, must be interesting to the public as well as the profession — it has been the wish of the Writer to show, in as clear and familiar a style as possible, intelligible alike to all classes of readers, the principles upon which the practice of inhalation is founded, as well as the various remedies employed, and the best mode of using them. But while divesting the subject, as far as practicable, of professional

technicalities, it must be distinctly understood, that it is very far from the intention of the Author to recommend self or domestic treatment. No friend to his species would advise the uninitiated to treat those formidable diseases, which have hitherto baffled the skill of the physician. When the varied resources of the medical art have been found unavailing, the best devices of those ignorant of the principles and practice of medicine, are only likely to hasten a fatal termination.

The Author hopes, that any inaccurracies of style, or other defects, will be considered, by the reader, with indulgence; for, in the midst of those active and important duties which daily devolve upon him, he has but little leisure for literary occupation, but it appeared to him better to attempt to do good—even though it be done in an imperfect manner—than not to do it at all.

In conclusion, the Author claims no merit beyond that of promoting and extending this invaluable means, for the direct local application of remedies; and if his humble labours tend to prolong the life, or alleviate the sufferings, of one of his fellow creatures, he will think them amply repaid.

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PRELIMINARY REMARKS.

The quiver of death has no arrow so fatal as consumption. In all ages it has been the giant foe of life. It blights the ruddy hue of youth, and cankers the damask cheek of beauty. It invades the domestic circle, and strikes down in the haunts of business and walks of pleasure. Insidious in its commencement, and fatal in its termination, it spares neither age nor sex, and extends its ravages to every climate; and, more fearful than the far-famed maladies of Pandora's box, pulmonary consumption has hitherto left its victims without

hope. It is, therefore, highly consolatory to know, that the influence of medicated inhalations at last bid fair to conquer its fatality.

Although the reasonableness and importance of inhalation, or the local application of medicated vapours, in diseases of the air passages and lungs cannot be questioned, it must be admitted that it has not obtained for itself, in this country, the extent of inquiry and experiment which it deserves, and which, amongst our continental brethren, has justly been bestowed upon it. And yet it is not easy to imagine how this mode of treating diseases of the organs of breathing should have been neglected, its feasibility is so self-evident, and in such accordance with the theory, principles, and practice of medical science, and the teachings of common sense—for it is an admitted fact, that remedies directly applied to the absorbing surfaces of the lungs, independently of the specific local influence they exert, are carried into the system, and produce analogous effects as when directed to the surface of the stomach. But there are frequent instances we meet with in actual life, where the duty of inquiry, if not positively rejected, is really evaded; and it was not, perhaps, to be expected that scepticism and prejudice, which beset all departures

from a beaten track, would leave this unopposed and disregarded.

Let not, however, the preconceived idea, that inhalation accomplishes little or no good, prevent an impartial and sufficiently extensive trial of its merits as a curative agent. The responsible duties which medical men owe to mankind, and to themselves, equally demand that this plan of treatment should be duly investigated; for, not gifted with infallibility, in what way, except by diligent inquiry and research, can the practitioner obtain any assurance, that he is not disseminating and perpetuating erroneous opinions of its value?

Some medical men, it is true, have given their attention to the subject, and have reported unfavourably of inhalation; but we have generally discovered that the cases in which it had been adopted, were of such a character, that the disease had already caused very extensive disorganisation of the lungs, or, that the remedies had not been administered in the proper quantities, and with sufficient caution and perseverance. It may, however, be observed, that the instances, in which these trials have been made, are "few and far between;" indeed, it may be asserted, although all the members of the profession approve

of the principles on which the system of inhalation is founded, yet scarcely one practitioner in five hundred has employed it as a remedial agent; and this strange apathy has been exhibited, it must be remembered, in the treatment of those diseases declared as *incurable* under the old routine of practice.

Facts do not at present justify us in asserting that inhalation will invariably and universally prove successful, any more than such a desirable termination could be expected in all other complaints, in which the treatment is more generally understood; but the result of our practice has clearly shewn us, that pulmonary consumption and other diseases of the chest are not incurable, as they have been hitherto esteemed,—that the medical art is possessed of means capable of oftentimes completely and radically overcoming them,—and that, in the most desperate cases, the more painful and distressing symptoms may invariably be palliated.

Putting aside, for the moment, the curative effects of inhalation, the incontrovertible fact of its being capable of lessening the amount of human suffering, must alone be considered sufficient, as demanding the most serious attention, and deserving a full and fair trial from the profession.

To guard against misconception, it is necessary to state, while relying so much upon inhalation, it is only as an important auxiliary that we regard it, and that we do not exclude in our treatment the more ordinary remedies; conscious, to quote the language of Horace,

> " ———— Alterius sic
> Altera poscit opem res, et conjurat amice."

For though the absorption of tubercles, or the cicatrisation of cavities, be accomplished by certain remedies acting specifically upon them, yet the germs of the disease may still be latent in the system, and, at a future time, again present themselves, if constitutional treatment be not simultaneously adopted, to improve that general depraved condition of the system from which they originate, and, at the same time, every precaution be used to avoid those exciting causes of disease to which we have elsewhere alluded.

It is a fine observation of a modern author, that " undoubtedly we have no questions to ask which are unanswerable. We must trust the perfection of nature so far as to believe, that whatever the order of things has awakened, the order of things can satisfy." We earnestly trust that the pages of this volume will hasten the period when there will be no unanswerable

questions in medical science: when the patient may trust the physician's skill so far as to believe, that whatever diseases the *ordo rerum* may unfortunately have generated, the resources of the medical art can remove.

A TREATISE

ON

MEDICATED INHALATIONS, &c.

CHAPTER I.

DESCRIPTION OF THE RESPIRATORY ORGANS.

To give the non-medical reader an interest in the method of treating diseases of the respiratory organs by medicated inhalations, and to enable him properly to appreciate the rules laid down for their prevention, we shall commence our Treatise with a brief outline of the anatomy of the thoracic viscera.

The chest, or thorax, is a cavity situated at the upper part of the body: it is longitudinally divided into two parts by a membranous partition called the mediastinum, stretched between the breast and the back-bone, or from front to rear. On one side of the partition is placed the right lung, which is divided into three sections, or lobes; on the other side the left, being divided into two lobes; the place of the third

being occupied by the heart, which lies on this side of the chest. (*Vide* anatomical plate.)

The lungs are of a dark-purplish, mottled appearance, and are composed of air-cells, congregated in small groups, or clusters, not unlike the clusters of the grape. Attempts at calculating the number of the air-cells have been made by some physiologists: Keill, distinguished for his mathematical attainments, computed them at 1,744,000,000 in each lung; Leiberkuhn, a German anatomist, represents them as equal in superficies to 20,000 square feet. Around the cells, binding them together, and forming, as it were, the matrix, in which they are imbedded, is a quantity of cellular substance, which may be said to constitute the substance of the lungs.

The air penetrates the lungs through the windpipe, or trachea, a round tube of about an inch in diameter, which may be easily felt running down the front of the neck. This canal is kept open by cartilaginous rings, inserted in its sides, which prevent the possibility of the tube being compressed by external means, or by food passing down the œsophagus, or gullet, in the act of swallowing; and thus respiration is preserved from interruption. At the bottom of the neck the windpipe terminates in the bronchi, or bronchial tubes which divide, like the prongs of a fork, into two principal branches, a right and a left; and these again subdivide, the right into three, the left into two, corresponding with the number of lobes in the lungs, which

they severally supply. Plunged into these lobes, the bronchial tubes continue still further to ramify and divide, until their branches attain an extreme degree of minuteness, and finally terminate each in a little rounded vesicle, or cul-de-sac, formed of the lining membrane of the air-tubes.

If the reader will picture the lungs of the exact shape and size required to fill each side of the chest, allowing a space for the heart on the left, and will further consider these organs of a light elastic spongy texture,—an interwoven series of air-tubes, air-cells, and blood-vessels, and each tube supplied with a nerve to direct its proper use, and to give warning when irritated or diseased,—he will have a tolerably correct idea of their form and structure.

The chief duty of the lungs, is to bring air in contact with dark or venous blood, or blood which has already performed its round of the body, by which exposure, it is converted into red, or arterial blood, or that blood which is circulated by means of a great artery called the aorta. This change, which is necessary for sustaining the freshness or vitality of the blood, and for generating and keeping up the heat of the body, is chemically produced by the oxygen of the atmosphere being absorbed, and a corresponding volume of carbonic-acid gas, which the blood had acquired in its circulation through the system, being given off.

The reader will now understand, from this description of the air passages and lungs, that if a patient,

labouring under any diseases of these parts, inhales medicated vapours in the same way as he breathes common air, that the remedies must necessarily come *in immediate contact with the organs affected.* It requires but little exposition to shew the importance and value of inhalation in these particular diseases, and its advantages over the ordinary mode of taking remedies; for it will at once be apparent, that medicines thus administered, escape the many changes which would otherwise be produced upon them, by the processes of digestion, chylification, absorption, assimilation, and by being circulated through the system before reaching the seat of disease.

CHAPTER II.

PATHOLOGY AND SYMPTOMS OF PULMONARY CONSUMPTION.

The membrane which lines the windpipe and the bronchial tubes in all their minute ramifications, and which terminates by forming the air cells, is endued in its whole extent with the power of *secreting;* that is, of separating from the blood certain materials which form a thick viscid matter, well known under the name of mucus. This mucus moistens the parts, and in all natural states, just a sufficient quantity is secreted for this purpose, and also to make up for what is lost by evaporation, or that moisture which every one knows accompanies the breath, on its return from the lungs; but should the lining membrane be injuriously acted on by any cause, such as breathing an acrid vapour, or a sudden change in the temperature of the air inspired, the membrane then becomes inflamed, and a greater quantity of blood than is natural is determined to the part, and, in consequence, more mucus is secreted than is necessary; it therefore collects, and, as the watery parts evaporate, condenses into pellet-shaped masses in the bronchial tubes, in which it has been formed, and a

partial obstruction is thus offered to the passage of air into the air cells supplied from this tube. Notice of this impediment is at once given by the nerves which supply the part, and nature endeavours by a cough,—that is, by a sudden and forcible contraction of the chest,—to expel the air from the cells and tubes behind the obstruction, and thus dislodge the offending matter. This is a plain and simple account of that very common affection called a "cough," and will explain to our readers the pathology of coughing.

As secreting surfaces separate the materials of mucus from healthy blood, so will they remove any morbid products from vitiated blood; and the air tubes and air cells which in health secrete mucus, which is not only harmless, but, as we have shewn, beneficial, will, in a state of disease, secrete a new matter, termed tuberculous deposits.

Various opinions have been entertained respecting the nature and origin of tubercles. Hippocrates, Galen, and other ancient authors, considered them to be putrified phlegm lodged in the lungs. In later times, Sylvius de la Boe, Tralles, Portal, Broussais, and Wepfer, conceived that tubercles were lymphatic glands, and liable, as all other glands are, when irritated, to become inflamed, and eventually to suppurate. Dr. Reid considers them to be a collection of inorganic mucus; Dr. Barrow and M. Dupuy endeavour to shew that tubercles are hydatids (very minute animals distended with fluid, which have been discovered in several

cavities of the body); Laennec says, that a multitude of facts have convinced him that the development of tubercles is the result of a general depraved condition of the system; Dr. Carswell believes that tuberculous matter, ready formed, exists in the blood, and is deposited in the lungs; Dr. Campbell gives his opinion, that the blood becomes charged with particles derived from the materials of nutrition, which, being carried forward to the lungs, are capable, in some organisations, of passing through their extreme vessels, and hence producing no effect, but which, in other cases, are retained by the capillaries (the small ramifications of arteries), and thus, by gradual accumulations, form masses apparently homogeneous, to which is conventionally applied the name of tubercle. Dr. Flood, in his recent work, very ingeniously tries to prove that tuberculous deposits essentially arise from some defect in the function of nutrition, from disease of the mesenteric glands, and consequent obstructions in the lacteal vessels, and the progress of the fluid they contain. Others have contended that tubercles are the products of inflammation, and a vast number of different theories have been broached as to the origin of tubercles; but, as they are based on mere hypothesis, it would be tedious and of no practical use to advert to them, for it must be admitted by all candid minds, that the origin of tubercles has hitherto baffled all research.

When tubercles are first deposited they appear of a greyish hue, are transparent, and are named miliary,

from their supposed resemblance to the millet seed. They seem to the naked eye round, but the microscope shews them to be angular; they are very adherent to the lungs, and cannot be separated without also detaching the pulmonary texture. They vary in number from four or five to as many thousands. After a longer or shorter period they gradually enlarge, and eventually soften, generally first in the centre, and sometimes simultaneously at several points, and running into each other form a cavity, or excavation in the substance of the lungs. When the tuberculous mass is completely softened, it becomes of a dull yellowish white colour; and pus, generally of a thick, tenacious, cheesy-like nature, is expelled from the lungs through the bronchial tubes into the windpipe, and from thence is expectorated.

While this disorganisation is advancing inside the lungs, corresponding symptoms are discovered in the general health. It is impossible to describe correctly, by any symptoms, a disease so varied in its course and duration as consumption; but the first indication is most commonly a slight tickling cough, which from being unattended with any great difficulty of breathing, or constitutional disturbance, is too frequently regarded as a *simple cold*, and is oftentimes treated improperly, or altogether neglected. After a short time the cough becomes more frequent, and is accompanied by a little mucus expectoration, the breathing gets hurried, and the pulse quickened, especially after any exertion, and

occasionally a "stitch" in the side is complained of. The patient gradually becomes paler, and palpitations are experienced, especially after ascending stairs, or walking quickly. A degree of feverishness ensues, with a feeling of chilliness during the day, and in the night the perspiration is much increased, by which the pulse is lowered, and the frame generally debilitated: this may be termed the first stage, and it is most desirable that medical aid should be sought at this period.

The second stage is characterised by loss of appetite, emaciation, and diminished strength: the fever increases, the cough becomes more frequent, and the expectoration more abundant. Perhaps at this period, from the tubercular deposits pressing on the sides of some small vessels, thereby obstructing the flow of blood through them, blood becomes extravasated, and is spat up, or streaks of it mark the expectoration. The cheeks are patched with a hectic flush — more difficulty of breathing and oppression at the chest are experienced — for less air being taken in at each inspiration, more frequent inspirations become necessary, and the person who formerly breathed but fifteen times in a minute will now breathe twenty; the perspirations are more copious, and the general power is so diminished, that the patient is no longer capable of active exertion or exercise.

In the third, or last stage, a marked change succeeds: the tuberculous deposits, being increased in size and number, are clustered together, and running into each other form an excavation, into which the air has now free

admission, and acts on its raw and unhealed sides. From this result fresh inflammation, new supplies of blood, and new depositions of tubercular matter; the cough further increases in severity and frequency; the expectoration is changed in character, and consists of pus, or mucus, containing softened, or occasionally solid tuberculous deposits, shreds of lymph, and sometimes particles of pulmonary tissue in a fœtid state. The fits of coughing are now distressing, especially after lying down, or getting up, perhaps because the change in position alters the situation of the puriform matter remaining in the cavity, and thus exposes a new source of irritation. Should the disease be principally confined to one lung, the patient generally lies on that side, by which means the sound lung, which is now called upon to perform the greater part of respiration, is left unimpaired by the weight of the body, and can thus be more fully and easily dilated. But the alleviation is merely slight and temporary: fresh collections of tubercles burst, and additional exacerbations are thereby excited — the night perspirations break forth heavy and profuse — the debility and emaciation progress in proportion to the other symptoms — the lining membrane of the air passages becomes thickened, or ulcerated, or even studded with tubercles, and the cough is incessant — the extremities swell, and the powers of the stomach failing, its contents are not unfrequently rejected by the violent fits of coughing. The intestines share in the general state of disease, the internal membrane of which

becoming irritated, or ulcerated, diarrhœa alternates with or accompanies the profuse evacuation of the skin. The hectic flush is increased, and the eye assumes a pearly whiteness, and has a certain wildness of expression; the brain supplied with improperly aërated blood is also affected, and mental excitement, common from the commencement, occasionally towards the close heightens to languid delirium, or total imbecility; but the senses most frequently remain entire, and the poor patient gradually and imperceptibly sinks into eternity, oftentimes anticipating to the last moment a recovery.

CHAPTER III.

DIAGNOSIS OF PULMONARY CONSUMPTION AND OTHER DISEASES OF THE CHEST BY AUSCULTATION.—PROGNOSIS.

The act of inspiration and expiration, or the passage of air into and out of the lungs, and the motion of the blood in the heart and blood-vessels, produce certain sounds; and the term auscultation (from auscultо, I listen) is applied to the methods used to ascertain by these sounds, or signs, which reach the ear when placed next to the chest, the seat and nature of various diseases of the respiratory and circulating organs. Should the lungs or the heart be diseased, these sounds become changed, and thus the altered condition of their structure will be detected. But the application of the ear itself to the chest, more especially of the female sex, is objectionable for obvious reasons, added to which it is impracticable thus to institute a proper examination of some parts. To remove these difficulties, a little instrument, called the stethoscope, consisting of a hollow tube or trumpet, about a foot in length and two inches in diameter, was invented by the eminent pathologist Laennec, in the year 1816; which

not only enables the practitioner to explore all parts of the chest, but communicates the sounds in a much more perfect degree. It is well known, that sounds conveyed by a tube, or any other body in direct contact with the ear, are much more distinct than when widely diffused in the air; hence the reason of deaf people employing hearing-horns. This familiar example will explain to the reader the object of this all-important instrument, which, although at first ridiculed as quackery and absurdity, is now universally regarded by the profession as one of the greatest boons presented to the medical world in modern times.

Percussion, or the mode of artificially producing sounds, consists in striking the chest, and is equally simple in its principles as is auscultation by the stethoscope. Suppose we strike with the finger any hollow vessel, a common wine-glass, for instance, a certain sound will be produced, which would have been totally changed in character had the glass contained any solid substance or fluid. It must, therefore, be evident that the chest (which may be regarded as a hollow reservoir), when there are no morbid deposits in the lungs or heart to increase its density, will emit sounds of a different kind from what they would be if such substances were present.

It would be foreign to the object of this work, and incompatible with its assigned limits, to enter minutely into the various and delicate sounds which characterise different diseases of the lungs and heart, but we may generally remark that the respiratory murmur, which in

a state of health is scarcely audible, becomes in tuberculous disease more distinct, the voice more resonant, and the sound produced by percussion duller. These alterations in the respiration, and in the signs elicited by percussion, take place from the summit to the base of the chest, and are most frequently confined to the superior lobes of the lungs on one side, where the development of tubercles usually first takes place. In bronchitis, with which consumption is sometimes confounded, the morbid sounds proceed from fluid in the bronchial tubes, and not from an increased density in the lungs; and, unlike consumption, they are generally discovered at the inferior part of the chest, and usually at both sides. The physical signs which denote suppuration in the latter stages of consumption, consist in the superior parts of the chest being dull on percussion, accompanied by a hollow, coarse respiration, giving rise to a peculiar phenomenon, called pectoriloquy, which is said to exist when the voice is heard through the stethoscope applied to the chest, and sometimes by a tinkling echo, or metallic ringing. Should there be much fluid in the lungs, arising from impeded respiration, a mucus râle, or rattle, which has been compared to the sound caused by blowing through a pipe into soapy water, is then perceived over the diseased parts. When the air passes through the cavities a peculiar cavernous respiration, induced by the passage of air from the bronchial tubes into the cavities, instead of entering the minute air-cells, is heard. To demonstrate the presence of tubercular

disease, the physical signs must exist collectively, and be accompanied by the general symptoms to which we have alluded in the previous chapter.

The information to be acquired relative to the condition of internal organs in general is necessarily very limited, but by the aid of auscultation and percussion the practitioner is enabled to obtain *direct* symptoms of thoracic diseases, in respect of their nature, origin, and condition, which are almost as infallible as those derived from actual sight; and he is thereby enabled to steer his course through those numerous difficulties and uncertainties, which would embarrass and perplex him if attention were wholly directed to functional derangement.

But although the various changes in the texture and functions of the lungs and heart, are capable of being detected with such wonderful certainty, yet it is evident that the power of discovery must belong to those only who have, by physiological and pathological investigations, added to considerable practice and close observation, made themselves acquainted with their formation, progress, and results. For it is not sufficient that certain sounds be communicated to the ear, that disease will be detected—the mind must be made familiar with the objects from which these sounds proceed, and the ear must be musical, and well tutored, to be capable of discriminating between the healthy and morbid sounds.

The pulmometer, to which we have alluded in another part, is also an important addition to our means of

detecting disease, and in ascertaining the power of the lungs under different circumstances and conditions.

Respecting the prognosis of pulmonary consumption, we may briefly remark, that it may be regarded as favourable when the disease is confined to one lung, and unattended by purulent expectoration, hectic fever, nocturnal perspirations, or materially-diminished strength. The most unfavourable circumstances are, the complaint descending from tuberculous parents, and attacking both lungs, great emaciation, high degree of fever, colliquative sweats, expectoration of pure pus, diarrhœa, and swelling of the extremities; which symptoms may be regarded as infallibly denoting tuberculous excavations. But, to shew that such advanced cases are not invariably incurable, as they have been regarded by many members of the profession, we must refer the reader to the chapter on "Treatment," and the cases annexed thereto. In confirmation of this opinion, it would be impossible to refer to a higher authority than Laennec, the greatest pathologist of modern times, who says, "from a multitude of facts, I am convinced that in some cases the disease is curable in the latter stages;" that is, after the softening of the tubercles, and the formation of an ulcerous excavation: and further, "that the cure of consumption, when the lungs are not completely disorganised, ought not to be looked upon as at all impossible, in reference either to the nature of the disease, or of the organ affected."

CHAPTER IV.

STATISTICS OF PULMONARY DISEASES: SHEWING THEIR EXTENT AND DURATION, AND HOW FAR INFLUENCED BY CLIMATE, RACE, OCCUPATION, AGE, AND SEX.

PULMONARY CONSUMPTION is not only of very frequent occurrence, but almost invariably, under the ordinary mode of treatment, of a fatal character. As evidence of this melancholy fact we need but refer to the following table, extracted from the bills of mortality, which exhibits the ravages of consumption in the seventeenth, eighteenth, and nineteenth centuries.

SEVENTEENTH CENTURY.			EIGHTEENTH CENTURY.			NINETEENTH CENTURY.		
Years.	Total Deaths.	Total by Consumption.	Years.	Total Deaths.	Total by Consumption.	Years.	Total Deaths.	Total by Consumption.
1657	12,434	2,757	1705	22,097	2,784	1829	23,524	5,372
1682	20,691	3,464	1710	24,060	2,706	1833	26,577	4,355
1687	21,460	3,373	1720	25,454	3,054	1834	21,679	3,792
1692	20,874	3,512	1730	26,761	3,728	1836	18,229	3,238
1696	18,638	3,471	1745	21,296	4,015			
1697	20,970	3,820	1750	23,727	5,887			
1698	20,183	3,583	1755	21,917	4,322			
1699	20,795	3,351	1758	17,576	3,411			

Since the year 1836 the bills of mortality have been much more carefully prepared, under the able superin-

tendence of Mr. Farr, than they were previously to that period. By these new tables we see that, on an average, *seven thousand six hundred and forty-seven* deaths annually occur in the metropolis from consumption, and about *sixty thousand* in the whole of Great Britain; and if to these are added numerous other complaints of the respiratory organs and of the heart, it may be fairly estimated that *one-half* of the deaths in these climates depend on diseases of the chest.

When we recollect the delicate organisation of the lungs—that every minute of our existence we inspire and expire upon an average thirty-six times, which movements commence at birth and continue without cessation until death—and when we remember how the lungs receive blood from the heart, varying in quantity and quality, and how they are operated upon by a changeable atmosphere, impregnated with injurious vapours and loaded with hurtful particles, we can experience no surprise at the universality of pulmonic disease. But however easily we may be able to account for the fatal termination of consumption, the admitted fact, that sixty thousand persons are computed to die of it annually in Great Britain, assuredly demands, the serious attention of the faculty, and it is a matter of no slight regret, that this fell destroyer of our species should so long have been ranked as the opprobrium artis medicinæ.

From the Registrar-General's report it appears, that in the unions of the counties of Cornwall, Devonshire, Dorsetshire, Wiltshire, and Somersetshire, whose esti-

mated population was 1,723,770, the deaths from consumption were in the

	Males.	Females.
Cities	1,947	1,930
Counties	1,325	1,466

In the counties of Essex, Gloucester (except Bristol and Clifton), Hereford, Norfolk (except Norwich), Suffolk, Sussex, and Westmoreland, whose estimated population is 1,776,980; and in the districts of Bath, Aston, Bristol, Clifton, Birmingham, Cambridge, Carlisle, Derby, Exeter, Dudley, Leeds, Leicester, Manchester, Liverpool, Maidstone, Newcastle-on-Tyne, Nottingham, Northampton, Stoke-upon-Trent, Salford, Sheffield, Sunderland, West Derby, and Wolverhampton, whose estimated population is 1,762,710, in the same period there died from consumption—

	Males.	Females.
Cities.....	2,118	2,130
Counties	1,363	1,703

These tables exhibit the influence of *occupation* in producing pulmonic disease. In the rural districts, agricultural pursuits are generally followed; while in the larger towns, trades and manufactures are carried on in badly ventilated apartments, and with cramped and unhealthy positions of the body.

Dr. Lombard, whose researches are founded on a

total of 4,300 deaths from pulmonary consumption, and 54,572 persons pursuing different trades in workshops and in the open air, ascertained that the number of deaths in the former were double that of the latter, and this proportion increased as the apartments were confined and ill ventilated.

The subjoined statistical reports of Major Tulloch are most interesting, as exhibiting the extent of pulmonic disease at various foreign stations:—

	Windward and Leeward Command.	Jamaica.	Gibraltar.	Malta.	Ionian Islands.	Bermuda	Canada.	Nova Scotia and New Brunswick.	Cape District.	Mauritius.	United Kingdom.
Attacked annually, by Phthisis, out of 1000 white troops at each of the following stations	12	13	$6\frac{5}{10}$	$6\frac{7}{10}$	$5\frac{2}{10}$	$8\frac{8}{10}$	$6\frac{5}{10}$	7	$3\frac{1}{3}$	$7\frac{7}{10}$	$6\frac{6}{10}$
Deaths annually, per 1000, from all Diseases of the Lungs at the same stations . . .	$10\frac{4}{10}$	$7\frac{5}{10}$	$5\frac{3}{10}$	6	$4\frac{8}{10}$	$8\frac{7}{10}$	$6\frac{7}{10}$	$7\frac{1}{10}$	$3\frac{9}{10}$	$5\frac{6}{10}$	8

It is to be remarked, with regard to this table, that as many of the troops are invalided at these stations who die on their passage homeward, or after their arrival in this country, they are necessarily excluded from it; hence the actual mortality is greater than it is here represented to be.

The annexed report relates more particularly to the Negro population of various climates:—

	West Coast of Africa.	Honduras.	Bahamas.	Jamaica.	Mauritius.	Windward and Leeward Command.	Gibraltar.
Died, annually, per 1000 by diseases of the lungs, in black troops	$6\frac{3}{10}$	$8\frac{1}{10}$	$9\frac{7}{10}$	$10\frac{3}{10}$	$12\frac{9}{10}$	$16\frac{5}{10}$	$33\frac{5}{10}$

Nearly two-thirds of this mortality, it will be seen, arise from consumption; the proportion is less than that of Englishmen, but if the native troops leave their country for colder climates, the mortality among them increases to such an extent, that it would seem impossible for them ever to perpetuate a healthy offspring.

With respect to the *period* of life above puberty, at which consumption is most fatal, it has been generally remarked, that the greatest mortality occurs between 20 and 40. Bayle and Louis found that, upon an average of many hundred cases, the deaths occurred as follows:—

Age.	Deaths.		
	Louis.	Bayle.	Total.
15 to 20.....	10	10	20
20 to 30.....	29	23	52
30 to 40.....	23	23	46
40 to 50.....	21	21	42
50 to 60.....	12	15	27
60 to 70.....	5	8	13

Dr. Briquet, physician to the Hôpital Cochin, states, that of 609 individuals who had died in the hospital from consumption, three-fifths of the cases occurred between the ages of 20 and 35 years, and in most of the remaining between 35 and 50 years of age. The mean age at which the patients descended from parents subject to consumption, were first attacked, Dr. Briquet found to be 27, while those in which the disease was not proved to be hereditary, 31 was the mean of its appearance.

Lombard de Génève, who had unusual opportunities of instituting post mortem examinations of children, stated that consumption is very rarely found in the fœtus, or in the first months of life, and that

From 1 to 2 years, it was discovered in 1-8th.
„ 2 to 3 . . . . . 2-7ths.
„ 3 to 4 . . . . . 4-7ths.
„ 4 to 5 . . . . . 3-4ths.

With reference to the different seasons, out of a mortality of 240, Dr. Bayle reports that—

54 died in the Spring.
68 . . . . Summer.
64 . . . . Autumn.
54 . . . . Winter.

Of 98 cases treated by Dr. Briquet, 30 supervened in December, January, and February; 24 in March, April, and May; 23 in June, July, and August; and 21 in September, October, and November. In our own practice, we have found pulmonary consumption more

prevalent and fatal during the autumn and winter than at other seasons of the year.

In regard to *sex*, the statistical tables of Paris, out of 9,542 cases of consumption, give 5,582 females, and 3,960 males.

The following statement shews the age and sex of one hundred consumptive patients, treated by us in private and parochial practice :—

Ages.	Males.	Females.	Total.
Between 3 and 15	5	11	16
„ 15 — 20	8	11	19
„ 20 — 30	15	18	33
„ 30 — 40	8	10	18
„ 40 — 50	3	4	7
„ 50 — 60	3	3	6
„ 60 — 70	0	1	1
Grand total	42	58	100

It will be noticed from the above table, how much more prevalent consumption is among the female sex. There are many reasons which will, independently of their more delicate organisation, account for this disparity, among which may be enumerated, the want of a proper physical education — insufficient clothing, more especially to the upper parts of the chest — and tight lacing — to which points we have more particularly alluded in another part of these pages.

The average duration of tubercular consumption has

been stated by Heberden, Andral, Louis, Sir James Clarke, and others, as ranging from nine months to two years; but this calculation does not apply to the *acute* forms, commonly called "galloping consumption," which may prove fatal from two or three weeks, to three or four months.

CHAPTER V.

THE CAUSES OF DISEASES OF THE CHEST, AND THE MEANS FOR THEIR PREVENTION.

Pulmonary Consumption, or, in medical language, phthisis pulmonalis, may be classed under two heads — the hereditary, and accidental. The hereditary, the more frequent cause, descending from persons of a hectic constitution, usually indicated by a smooth, fair, and rosy complexion, light eyes, large transparent blue veins, fair or red hair, a narrow pointed chest, high prominent shoulders, long thin neck, and generally slender frame. The accidental, originating from different circumstances, such as variations of temperature — imperfect nutrition, whether from deficient or improper food — breathing a vitiated atmosphere — depressing or exciting passions — insufficient clothing, and tight lacing — continued fever — fluor albus, or any weakening discharges — continuing to suckle too long — excessive indulgencies — onanism — intemperance — long continued courses of mercury: these are some of the more common causes; but a deranged state of health, it matters not how produced, predisposes to tubercular disease. In some foreign countries, more particularly

Spain, Portugal, Italy, and Malta, pulmonary consumption is regarded as contagious, and hence the civil authorities direct that the clothes, &c., of all persons dying of this disease be immediately burnt; but a great majority of British practitioners do not entertain this opinion.

Conceiving that it is one of the most important duties devolving upon the medical practitioner, to withdraw individuals from the influence, or morbific agency, of disease, we shall make a few observations upon the conditions necessary for the preservation of health, and also point out, as far as our limits will permit, those precautionary measures by which not only pectoral, but other diseases may oftentimes be averted. It is not in the power of persons entirely to overcome natural weakness, or deficiency of constitutional energy; but, there is no doubt, by becoming better acquainted with the functions of the different organs, and the laws by which they are regulated, that individuals may frequently preserve to themselves that greatest of all earthly blessings — mens sana corpore sano.

The principal conditions necessary for preventing disease, and which every reasonable being has more or less the ability of complying with, may be thus enumerated: a supply of pure air — a sufficiency of food and clothing — a healthful exercise of the various organs of the system — a proper temperature — a due regulation of the temper, appetites, and desires — cleanliness — exemption from harassing cares — participation in cheerful and innocent amusements.

Air.—A constant supply of pure air is indispensable to the arterialisation, or preparation, of the blood in the lungs, and, consequently, to the preservation of life. To enable the reader to understand how these important changes take place in the composition of the circulating fluid, it is necessary to premise that common air is composed of two gases, in certain proportions — namely, oxygen, orvital air, as twenty-two, and nitrogen, or azotic gas, as seventy-eight, parts in a hundred, with the addition of a minute portion of carbonic acid, or fixed air.

The atmospheric air, when inspired, consists of the component parts just stated, but after its passage through the system, it is expired in a very different state; for on the air reaching the lungs, about two-fifths of the oxygen enter into combination with the carbon of the venous blood, and is mixed with the circulating fluid, the remaining three-fifths being exhaled along with the nitrogen, nearly in the same state as it was originally received. In place of the oxygen consumed, there is expired an equal volume of carbonic acid gas, which had been generated in the system; and when this gas exists in a larger proportion than is proper in a confined apartment, the atmosphere becomes of a noxious character, and is rendered unfit to be again breathed. It has been ascertained that a healthy adult breathes from fourteen to twenty times in a minute, and that from twenty to forty cubic inches of air are inhaled at each inspiration,

consequently about sixty hogsheads will pass through the lungs in the course of four-and-twenty hours.

During the time we were pursuing our professional studies at Paris, several interesting inquiries were instituted upon the component parts, and effects, of the vitiated atmospheres of crowded rooms and assemblies. In the Hôpital la Pitie, the air of one of the wards, occupied by fifty-four patients, contained five times more carbonic acid gas than is found in common air; the same results attended investigations made, under similar circumstances, at the Salpetriére. In Professor Dumas' class-room, after a lecture of an hour and a half, where nine hundred persons were present, the carbonic acid amounted to one per cent. This is agreed to be the maximum quantity for safety. Lablanc found that a candle was extinguished in air containing four and a half or six per cent. of carbonic acid. In such an atmosphere it has been ascertained that an animal will live for a short time, apparently without experiencing inconvenience; but, in proportion as the consumption of oxygen and the exhalation of carbonic acid proceed, the breathing becomes oppressive, and, after great gasping and struggling, the animal in a few hours dies. We can confidently assert, that upwards of three per cent. of carbonic acid often exists in the atmosphere of our London theatres, crowded offices, and workshops, in which a constant renewal of fresh air is rendered the more necessary in consequence of their being almost universally lighted with gas, one burner of which will consume

more oxygen, and give out more carbonic acid, than seven or eight candles. Every breath we draw in, under such circumstances, it ought ever to be remembered, is detrimental to health.

We are glad to see that the necessity of a regular supply of wholesome air, wherever living beings are congregated, is now more appreciated, for it must be admitted that the important subject of ventilation has been hitherto too little regarded, not only by the public, but even by the medical practitioner, whose treatment of disease is oftentimes rendered abortive by inattention to this point. As Dr. Arnott well expresses, in his admirable work on Ventilation, "these aëriel movements are to man what the constant gliding past of a clear river stream is to the fishes which inhabit it, and as certainly as we should destroy the trout of a stream by confining them in a small portion of their watery element, until it became a dirty putrid puddle, or as we should distress and injure them by confinement and privation in a less degree, so do we destroy or injure human beings, when we too closely confine around them a portion of their aërial element."

The atmospheric air is deteriorated by various other circumstances, such as miasmata, or effluvia proceeding from putrid fermentation of animal and vegetable substances, which are so frequently allowed to accumulate in the narrow streets and alleys of large cities —from collections of muddy water—and the asphyxia from the common sewers, and badly constructed drains.

These baneful exhalations are taken up by the absorbing vessels of the lungs and skin, are carried into the system, and produce the same injurious effects as if introduced into the stomach. The different metallic vapours and dust, more especially those containing lead or mercury, and various simple and compound gases, to which gilders, workers of brass, tin, and bronze, glass-blowers, miners, and others are exposed, are frequent sources of pectoral diseases, by creating a morbid impression upon the nerves of the lungs and air-passages, and by obstructing or preventing the necessary changes from taking place in the constitution of the blood. Millers, dressers of flax or feathers, knife-grinders, and others, are, therefore, obnoxious to these results, by inhaling the numerous minute foreign particles with which the air they breathe is charged, which, by producing irritation in the structure of the lungs, eventually lead to the development of pulmonary consumption.

Food.—As pure air is the first great requisite for free and salutary respiration, so the second is the supply of rich and wholesome blood from proper food, for the sustenance of the frame and the preservation of health.

The stomach appears to be the great characteristic between the animal and vegetable kingdoms; for the nutritive system of animals, from the humblest to the highest, has its cavity, or alimentary tube, adapted for digestion; that is, converting its food into chyle, and

then into blood, which latter being circulated throughout the whole frame, by means of the different vessels, serves to supply the daily waste which takes place by the various secretions. The stomach is the seat of universal stimuli and irritability, and from the intimate connection existing between this organ and the whole system, any diseased action of mind or body is capable of creating a disturbance of its office, and so exciting general or local disease. Seeing, then, the important part the organs of digestion perform in the whole animal economy, it must be evident that unwholesome food, or anything calculated to disarrange them, ought to be most studiously avoided.

It is not our intention to enter into the minute composition of the numerous articles of diet, or to recommend any particular rules as to quantity, or the time of taking them; for every day's experience shews the absurdity of constructing an universal standard upon such matters, so much depends upon age, sex, activity of life, and individual peculiarities. We may, however, generally remark, that "fish, flesh, and fowl," are all calculated for the sustenance of man; but the more minute and tender the fibre, the more capable is the gastric juice of assimulating them. The red meats, as mutton, venison, and beef, are the most nutritious, and easily digested when the health is vigorous; but as they excite the pulse, and are apt to induce a slight degree of fever, they are improper for convalescents or valetudinarians. The white meats, such as veal, chicken, &c.,

are less exciting, and hence called lighter, but they are not so nutritious as the former. Fatty and oily aliments, as geese, pork, ducks, and eels, should be eaten with caution, as they are found to disagree with the nervous, bilious, and hypochondriacal. Fried and baked meats, and stewed dishes, more especially when prepared a second time, are more difficult of digestion than when roasted or boiled. Smoked and dried provisions, from which a poisonous product is occasionally evolved, and shell-fish, are objectionable; so also are pastry, oily dishes, unripe and stale fruits, particularly those which consist of nuts, such as almonds, filberts, &c. Farinaceous food, as arrowroot, tapioca, and sago, are digestible, and well adapted for invalids. Potatoes are wholesome; but green vegetables and fruits, however carefully prepared, are difficult of digestion. From experiments it has been ascertained there is little or no difference perceptible in the chyle produced from vegetable or animal matter; but it is well known that animal food yields, in a given bulk, much more nutriment than is derived from vegetables. In this climate, a mixed diet is desirable, for animal food alone would prove of too stimulating a nature.

It is not, however, sufficient that attention should alone be directed to a judicious selection of articles of diet, but it is equally to be remembered that nature requires a certain quantity only. The primary object of taking food being that of repairing the continual waste of the animal substance, any overloading or over

exciting the stomach, from a false appetite, produces a redundancy of blood, and thus predisposes to as many diseases as does an innutritious or unwholesome diet from a paucity of this fluid. Too much attention cannot be paid to this point by those persons labouring under, or predisposed to, pulmonary disease, or affections of the heart; for excessive food, it is well known, not only exasperates such diseases, when existing, but oftentimes induces them. Dr. Wilson Philip truly remarks, "all persons should carefully attend to the first feeling of satiety. There is a moment when the relish given by the appetite ceases; a single mouthful taken after this oppresses the stomach. If he eats slowly, and carefully attends to this feeling, he will never overload the stomach." It is important that food should be well masticated, so as to mix it with the saliva, before being swallowed; for if presented to the stomach half-chewed, it cannot be properly acted on by the gastric juice. When the teeth are bad, the meat should be cut very small, or broths, soups, and jellies substituted, as these contain much nutriment, and are presented, as it were, in a state of semi-digestion.

The beverages in common use are the source of many diseases: all those containing large quantities of alcohol, such as brandy, whiskey, gin, or wine, are more or less injurious to the digestive powers. The most wholesome spirit is the genuine Cogniac brandy, and, of the wines, port and sherry are the best adapted for this

climate; but delicate persons should take them diluted. Of malt liquors, we have found Bass's pale ale tonic and the least stimulating; and, to those whose diet is not very nutritious, may be safely recommended as an innocent and wholesome beverage; but caution and discretion are necessary when resorting to this or any other liquors, as some plethoric constitutions are so disposed to an inflammatory state, that congestions, and the various contingent diseases, are frequently produced by their continued use. Liqueurs and cordials are generally made up with injurious narcotics, and ought to be avoided.

Fermented liquors, by their highly stimulating effects upon the nervous system and the circulation, are a very common origin of functional and structural diseases of the lungs, heart, stomach, liver, brain, and other viscera. During our parochial practice, it was observed by us, that upwards of 65 per cent. of the diseases were produced by the abuse of fermented liquors; and it is an ascertained fact, that diseases proceeding from intemperance are liable to become hereditary, even for many generations, and gradually to increase in intensity, if the cause be continued, until the family becomes extinct. When this truth is more generally known and regarded, a great decrease in pulmonary and cardiac diseases will ensue.

Coffee, tea, and cocoa are wholesome drinks; they are found, it is true, to occasionally disagree with some

constitutions, but their salubrity is now so firmly established, as to outweigh any argument to the contrary founded on individual cases.

Clothing has great influence in creating a predisposition to diseases of the respiratory organs, and ought to be regulated according to the temperature, and the season of the year. In this variable climate, at all times, flannel should be worn next the skin; which keeps the surface of the body warm, and prevents the pores of the skin being clogged up, by the absorption of the oleaginous and aqueous secretions which are constantly exuding from the body. In some persons, flannel produces a too copious perspiration; in such cases, merino, or elastic cotton may be advantageously substituted. But, while guarding ourselves against the impressions of a variable temperature, we must be equally careful not to fall into the opposite extreme of employing an undue quantity of clothing; which, by retaining too much heat, inordinately stimulates the nerves of the skin, and consequently the internal organs become disordered by being thus deprived of their natural nervous energy, and of the power of performing their healthy functions. The same remarks are equally applicable to overheated rooms; and to warm soft beds, which, however comfortable they may be to our feelings, relax and weaken the frame, and render the lungs and air passages much more susceptible of injurious impressions from without.

The fact of diseases of the lungs and heart being

more prevalent among the fair sex, may be partly accounted for from the flimsy, insufficient, half-dress, which fashion has imposed upon them, and the baneful practice of tight lacing, which happily has now often been exposed. The importance of a regular and full expansion of the chest for preserving the organs it contains in a healthy condition, as well as the influence exerted through these organs on the entire system, must be at once evident to any one who will give the subject one moment's consideration. The lungs require a healthful exercise, equally with the limbs and other parts; and if we desire to maintain them in a vigorous state, they must be unfettered in their action, either by dress or position, to insure a healthy fulfilment of their allotted functions. But how can the chest perform its required duties when impacted in the common stay? When thus dressed, the muscles which expand and contract the chest cannot be brought into action, and the due dilatation of the lungs is prevented; the respiratory and circulating organs being impeded, congestions take place in the vessels of the lungs and heart, and elsewhere, as in the arteries of the head, from which a numerous train of diseases follow. The mischief proceeding from this reprehensible practice is not limited to the respiratory and circulating systems—the lower ribs being unnaturally bent in, the stomach, womb, liver, and other organs are injured thereby; and hence arise, in women, not only a host of diseases, but spinal curvatures, and other deformities, which endanger their

own lives and those of their infants during parturition. We have no hesitation in saying, that some thousands of lives are annually sacrificed to this horrible fashion.

Exercise.—It is well known that the strength and development of muscles increase in proportion to their healthful exercise, and that when deprived of action they waste and become enfeebled; and, by continued disuse, the nerves become changed from their natural structure, the blood-vessels are obliterated, the bones are softened, and the contractive power of muscles and their appearance are altogether lost. From the construction of the human form, it is clear that man was intended for an active existence, and if we do not live in accordance with these intentions of nature, a sound state of the energies cannot be maintained. A sedentary life is the bane of millions, and the frequent existence of nervous disorders, more especially among the higher classes, may be attributed, in a great measure, to this want of muscular activity.

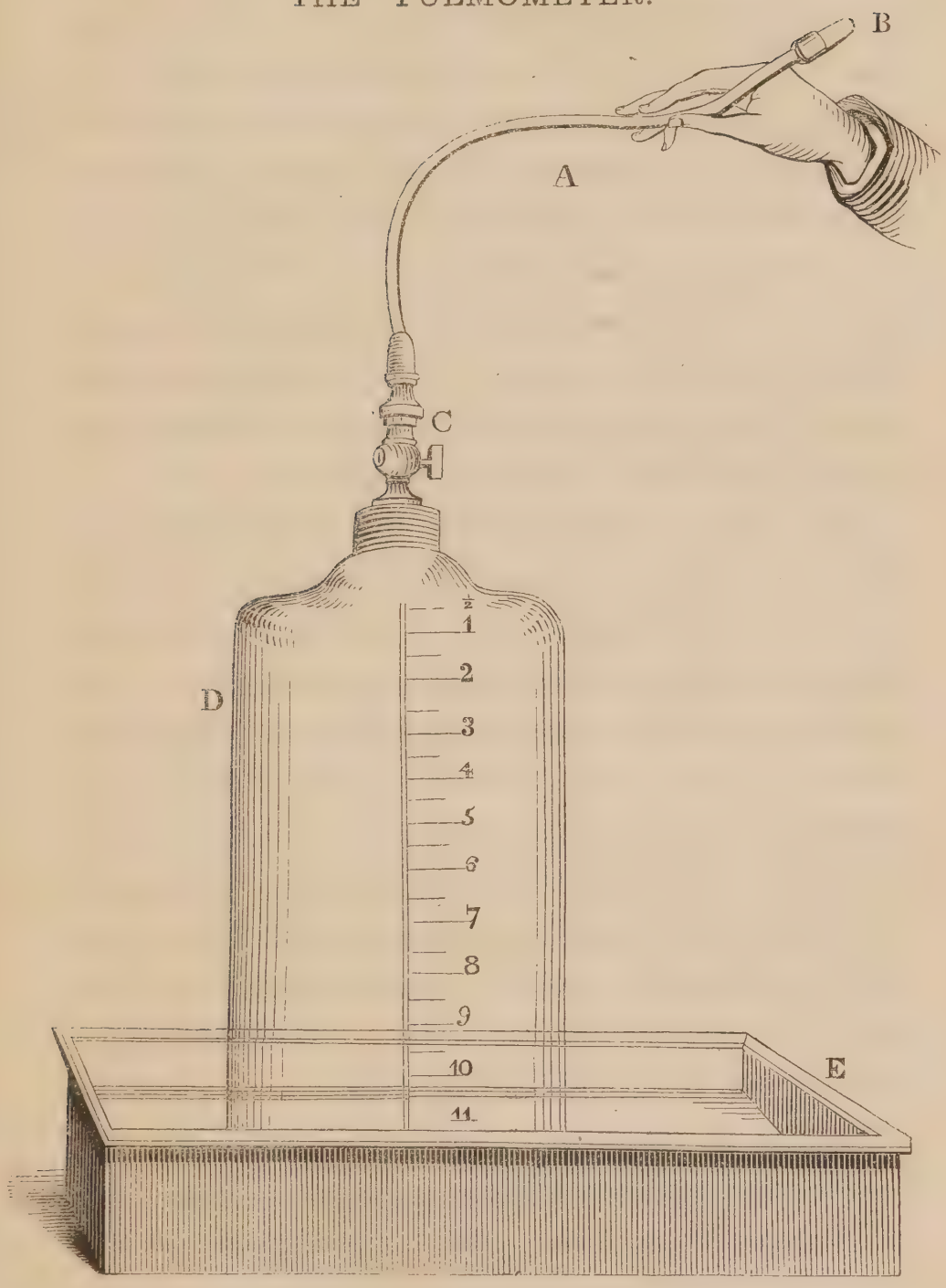
All persons should accustom themselves to take daily exercise in the open air, the extent of which must, of course, depend upon circumstances, such as the state of health, the strength, and habits; but, as a general rule, all those in health should be so employed at least for two hours daily. Horse and carriage exercise, gymnastics, sailing, and rowing, by which the mind is amused as well as the body exercised, may be adopted with great advantage in the incipient stages of consumption.

Sir James Clark recommends the following plan as well calculated to expand the chest, and give tone to the important organs contained in it:—"We desire the young person, while standing, to throw his arms and shoulders back, and, while in this position, to inhale slowly as much air as he can, and repeat this exercise at short intervals several times in succession. Some exercise of this kind should be adopted daily by all young persons, more especially those whose chests are narrow or deformed, and should be slowly and gradually increased."

A moderate use of the vocal organs materially contributes to strengthen the lungs; hence we see that players, lawyers, and public speakers undergo great exertion without inconvenience, and are less liable to pulmonic disease than persons of other occupations. But care must be taken that the labour be not carried too far, for over-exertion may irritate the lungs—medio tutissimus ibis. Young people, in whom there exists an hereditary or acquired predisposition to consumption, usually discovered by the formation of the chest and other circumstances, will derive very great benefit by directly exercising the pulmonary organs by a regular use of the inhaler.

When the object of inhaling is to act as a preventive of disease, by overcoming natural debility or want of healthy action of the lungs, we have found the annexed apparatus, which we term THE PULMOMETER, of signal advantage.

THE PULMOMETER.



A. An elastic breathing tube. B. The mouth-piece.

C. A stop-cock, to admit the ingress and egress of atmospheric air.

D. An inverted graduated glass jar. E. A trough, containing water.

The mode of using the Pulmometer consists in making a deep expiration and immediately afterwards inspiring, or "sucking up," by one continuous breath, as far as can be borne without inconvenience, the air which is contained in a graduated jar, inverted in a trough of water—as the air is exhausted so the fluid rises in the jar. Persons labouring under disease of the lungs will not "pull up" (as our patients sometimes significantly express it) more than two or three pints, whereas eight or nine pints may, without difficulty, be displaced by those having healthy and powerful lungs.

We have frequently observed in patients of naturally weak and sunken chests, who have inhaled in this manner for a short period, a most marked and beneficial change take place in the external appearance of the thorax; for not only are the lungs themselves expanded by means of the dilatation of their cells, formerly compressed, but the ribs become elevated, and the muscles concerned in breathing acquire a greater degree of power and volume by this increased action of their parts. That the pulmonic system may be strengthened by artificial means, is in some measure exemplified by the extraordinary powers of the lungs which characterise the inhabitants of mountainous countries, where, from the frequent ascent of acclivities and the necessity of deep and continued respiration, the general power of the pulmonic system is so much invigorated, that they are enabled to bear such an amount of fatigue which those

unaccustomed to such exercise would speedily sink under.

Temperature has a most sensible effect upon the distribution of the nervous energy and the functions of all the organs, and more particularly has great influence upon the production of tubercles. It has been remarked that a warm and humid state of the atmosphere greatly predisposes to pulmonic disease; and that heat remarkably diminishes the changes which take place in the blood by respiration, especially when combined with moisture. A dry state is most favourable in aiding respiration to effect healthy changes upon the circulating fluid; a very moist state has the contrary effect. A moderately cold and dry air, or, as it is termed, a "bracing air," is the most favourable for respiration, and generally increases the tone and energy of the system.

Seeing the direct influence of temperature upon the respiratory organs and the system generally, it will be apparent that too great care cannot be bestowed in guarding ourselves as much as possible against this variable climate, by preserving an equable temperature within and out of doors. The Respirator has proved a most valuable auxiliary in the prevention and treatment of diseases of the air-channels. Asthmatic, and other patients, when thus protected, are enabled to take exercise in all seasons and weathers.

Were persons to pay more attention to their clothing, and better regulate the temperature of their houses,

pulmonary and other diseases would be of much less frequent occurrence; for we are more injured, as Sir James Clark sensibly remarks, by the variations of temperature *created by ourselves* than by the actual vicissitudes of the climate.

Change of air, from a very remote period, has been regarded as a most important preventive and remedial agent in diseases, and more especially in those affecting the respiratory organs. The reasonableness of a removal from an atmosphere loaded with deleterious particles to the pure country air; from a bleak, exposed spot to a sheltered part; or from a low, marshy situation to a dry, elevated place; is now generally admitted. Who has not, indeed, experienced in himself or observed in others the beneficial effects of country air in restoring the energies of the frame when worn down by disease or anxiety of mind? That the advantages derivable from change of air are now duly estimated is proved by the almost deserted appearance of the metropolis and other large cities at certain seasons of the year, and the crowded state of our watering-places, which have so greatly increased in size and number within the last few years.

Change of air, however, to be beneficial must be employed with due regard to the locality of the situation chosen, and be regulated according to different constitutions, and the stage of the disease which renders a removal necessary. With some persons, a sheltered spot, with a mild, air will be proper; with others, an elevated

situation, with a sharp bracing air, will be desirable; and sometimes a residence at the sea-side is advantageous. The importance of duly considering the local features of the places visited by invalids has been too often overlooked by medical men; and hence, change of air, instead of being attended with benefit, oftentimes proves highly injurious. The Devonshire coast is about four or five degrees higher in temperature than London, and is generally best adapted to those predisposed to, or labouring under, chronic diseases of the chest. Sidmouth, Dawlish, Salcombe, and Torquay, particularly the latter, are sheltered from the north-easterly winds, and are most desirable as a residence, on account of the mildness and salubrity of their climates. The scenery around these parts is highly beautiful, and the county generally fully deserves the character it possesses of being the "Garden of England;" which circumstance we consider of no slight importance, for we frequently find that a journey to an interesting country effects much good by the beneficial excitement it gives to the mind. During our practice in Devonshire, we observed that the proportion of consumptive cases was considerably below the average afforded in all other parts of England. The west and south-west of France furnish several eligible places for the invalid to sojourn at, particularly Pau, which is situated at the base of the Pyrenees, and is remarkable for its mild and even temperature. Rome, Pisa, Naples, Nice, Montpelier, and Hyères, are much frequented by invalids, and occasionally with

advantage; but, of all other places, *Madeira* is unquestionably the best suited for consumptive patients — not only on account of its soft and equable climate, but from its easy access from this country, and the domestic comforts and accommodations which may be obtained there. The mean annual temperature of Funchal, the capital of the island, is about 5° above that of the south of France and the Italian climates, and the heat is so equally distributed, that while, in the winter, it is 20° warmer than at London, in the summer, it is nearly 5° cooler. We have seen great and permanent benefit derived by patients, in the very early stage of consumption, from a residence in this climate, and in those persons who have been threatened with the disease; but when the complaint has made great progress, it is both cruel and useless to send patients long journeys, for the fatigue and inconvenience attendant upon them, added to the distress of mind from the banishment, and the deprivation of the domestic comforts and attentions of home, are only calculated to hasten a fatal termination.

Cleanliness is highly requisite for the preservation of health. It is calculated that from one to two pounds of matter is carried off by the pores of the skin, in the course of four-and-twenty hours, being the chief portion of what is termed the 'waste' of the system, the remainder passing off by the lungs, bowels, and kidneys. Should the pores be clogged up by an accumulation of matter, the egress of the perspiration is prevented, and the residual parts are again introduced into

the system by cutaneous absorption, from which many diseases ensue, more especially catarrhous affections, which not unfrequently terminate in consumption. Sponging the body with vinegar and water, or salt and water, the shower bath, regular friction with the flesh-brush or a coarse towel, are all highly useful in promoting the general health, and overcoming that sensibility to cold, of which persons of a consumptive habit so frequently complain.

The passions and moral sentiments, through the medium of the nervous system and circulation, operate most powerfully upon the functions of all the organs of the body; and it is well known that any circumstance which depresses or excites the system, if long continued, frequently terminates in disease, more particularly of the lungs and heart. Dr. Southwood Smith truly remarks, that "it is impossible to maintain the physical processes in a natural and vigorous condition if the mind be in a state of suffering. Every one must have observed the altered appearance of persons who have sustained calamity. A misfortune that struck to the heart happened to a person a year ago; observe him some time after—he is wasted, worn,—the miserable shadow of himself; inquire about him at the distance of a few months — he is no more!"

Any circumstances operating upon the manifestations of mind, whether proceeding from the exciting or depressing passions, or arising from an inordinate indulgence of the faculties, deeply affect the physical condition, and

as life itself is dependent upon the physical condition, so it follows that they are capable of influencing the duration of life.

A proper regulation of the intellectual faculties, and those feelings, appetites, and passions which an All-wise Providence has granted for our enjoyment and happiness, by laying the foundation of habits of judicious self-control—the pleasant excitement of business, joined with innocent amusements, together with an approving conscience of living in accordance with the conditions designed by the Creator, are the best means of not only averting disease, but of securing our welfare and prosperity in life.

"——— Servare modum, finemque tueri,
Naturam sequi."

CHAPTER VI.

TREATMENT OF DISEASES OF THE CHEST BY MEDICATED INHALATIONS.

Inhalations of medicated vapours were much employed by the ancient physicians, and can be traced as far back as the second century, when Galen[a] sent consumptive patients to the vicinity of Mount Vesuvius, to inhale there the sulphureous vapours which arise from the soil; and it has been supposed that the early use of incense and various aromatic fumes in religious rites, originated from their well-known prophylactic effects on disease; which surmise is rendered the more probable when it is remembered, that the priests at that period exercised the healing art. But the remedies resorted to in these earlier times were, comparatively speaking, of little value, and to their inefficiency may be attributed, in a great measure, the neglect which subsequently befel this mode of treating disease. Almost all important remedial agents have been the production of more modern experience and investigation, the administration of which by inhalation may be said to constitute a new mode of treatment; and the hope may *now* be reasonably

[a] De Difficult. Respirat, lib. i., ii., iii.; et De Locis Affectis, lib. iv., cap. 7.

cherished, from the rapid advances which pharmaceutical chemistry has recently made, that pulmonary consumption will shortly be admitted, not by a few individuals, but the whole body of the profession, to be as much under the control of the art of medicine as is any other formidable disease.

Among the ancient and modern authors, who have successfully employed inhalations of medicated vapours, may be mentioned Hippocrates,[b] Cœlius Aurelianus,[c] Alberti,[d] Thilenius,[e] Zallony, Mudge, Crichton, Beddoes,[f] Hufeland,[g] Laennec,[h] Pearson, Elliotson, Forbes, Copland,[j] Murray, Gannal,[k] Hastings, Cotterreau, Scudamore, Coxe, Corrigan, Harwood,[l] Willson, and Thomas; who, being aware of the futility of a reliance on the usual modes of treating diseases of the respiratory organs, have thus laboured to extend the resources of the healing art.

As corroborative evidence of the value of pneumatic medicines, we have extracted from these learned authors many interesting and valuable remarks; and, from the

[b] De Morbis Chron., lib. i., iii.
[c] Dissert. de Spirandi Difficultate.
[d] Med. und Chirurg. Bemerk.
[e] Traite de l'Asthmé.
[f] On the Medicinal Use of Factitious Airs.
[g] Journ. der Pract. Arzneyk.
[h] A Treatise on Disease of the Chest. Translated by Forbes.
[i] Medical and Physical Journal, vol. xlviii.
[j] Dictionary of Practical Medicine.
[k] On the Inhalation of Chlorine.
[l] On Diseases of the Throat and Chest.

high position they have deservedly occupied in the ranks of the profession, their testimony is eminently calculated to add great weight to this simple and efficacious method of practice.

Dr. Willson, physician to the West London Infirmary, has published in "The Lancet" (vols. i. and ii., 1841-42), several interesting papers on the beneficial effects of medicated inhalations in pulmonary consumption. With respect to the scepticism with which this mode of treatment has been regarded by some members of the faculty, Dr. Willson says, "I know full well the extreme difficulty that presents itself of combating the old and confirmed prejudices, entertained by the majority of my profession and the public, against the curability of consumption, and I must admit that medical records but serve to strengthen such conclusions; but an enlightened and liberal profession should be open to conviction, free to embrace facts, and earnest to solicit inquiry. We have seen to what a surprising extent prejudice has blinded us to the most valuable remedial agents. Many of our best medicines were popular remedies, before the medical world would admit them into their vocabulary. Iodine, to a great extent, shared the same fate, and the physician who had the hardihood to recommend the internal use of cantharides was prosecuted, and suffered the penalty of his sagacity, but taught his followers the safety and value of his practice. Doubtless a new system of treatment should be received with due caution, but divested of all prejudice. If certain results

and certain facts are stated, a fair trial of their intrinsic worth should be made, and particularly if they refer to a disease which, to a sad extent, has baffled medical skill, and defied the ingenuity of the greatest talent."

No one deprecates quackery in every shape and form more than ourselves, but we must say that, when the generality of practitioners are *confessedly* incapable of combating the ravages of pulmonary diseases, it is unreasonable to suppose that the public will implicitly follow random and unsuccessful prescriptions, and not give trial to new remedies and modes of treatment, especially if supported by reputable testimony. The abuse or discountenance of the profession under such circumstances can avail but little; we believe the attempt to strangle in their birth the doctrines of Hydropathy and Homœopathy, without investigating their alleged merits, have rather tended to increase than diminish their popularity.

Dr. Copland states, that he has found medicated inhalations "diminish the quantity of sputum by changing the action of the vessels secreting it, without exciting cough, increasing the tightness of the chest, or otherwise disordering respiration;" and that he has employed "inhalations of turpentine in several cases of bronchitis, and seen marked benefit result from it." Dr. Copland further remarks, "as it has been only in a very few cases of tuberculous consumption I have adopted pneumatic medicines, my experience has necessarily been limited; but I have had sufficient evidence of their value to

justify me in warmly recommending them to the notice of the profession." Dr. Copland attributes the want of success which some practitioners have experienced partly to an improper mode of practising inhalation, and partly to having prescribed them inappropriately.

Dr. D. J. Corrigan, the highly-talented physician of Dublin, has published some extraordinary cures of consumption, bronchitis, and asthma, effected by the exhibition of remedies in the form of vapour. Dr. Corrigan observes ("Dublin Medical Journal," for March, 1839), that he feels justified in coming to the conclusion that medicated inhalations exert a most powerful influence over diseased action; and that, as it is only in this form we can administer remedies to act locally upon diseased tissues in the lungs, the exhibition of remedies in this manner merits the closest attention and most diligent inquiry. "Of the powerful influence," says Dr. Corrigan, "which various vapours, and even changes in the air itself, as to heat, moisture, constitution of the atmosphere, &c., exercise as local agents on the lungs and air passages, there cannot be a doubt. Every day's observation shews it; every one in his own person feels it; and, allowing most fully for the exaggerated encomiums of some advocates of inhalation, enough remains in the attestations of many of the greatest authorities in the profession to forbid us to abandon this plan of treatment."

Sir James Clark, in his "Treatise on Consumption,"

states, that he cannot speak very positively as to the merits of inhalation, having had so little experience in this mode of treating pulmonic disease, but that in those instances in which he has seen it adopted, the difficulty of breathing has been relieved, and the progress of the disease apparently suspended.

Dr. Mudge, in a treatise, published in the year 1799, entitled, "A Radical and Expeditious Cure for a Recent Catarrhous Cough," remarks that "every medical discovery has certainly a claim upon the public attention; for though, on a superficial view, the disease should seem slight or the treatment trifling, yet, when we reflect that the welfare of the great body of mankind is concerned, deriving importance from that consideration it swells into importance." Dr. Mudge expresses his conviction that the two great indications of preventing an increased irritation by the cough on the inflamed parts, and removing inflammation itself, are most fully answered, by inhaling warm steams into the air passages and lungs; and concludes by saying, that "the fact is past dispute, that the conjoined powers of these agencies are a sure and, in general, an immediate cure."

The efficacy of simple inhalations was subsequently much lauded by Bartholin ("Hist. Anat.," cent. iv., hist. 88, lib. iv.—"Pulmonum remedia quomodo adhibenda), and by Buchoz, in his "Treatise on Consumption." Dr. Mackintosh, in his "Practice of Physic," says, that inhaling the vapours of warm water is highly

serviceable in cases of bronchitis and croup, and affords more ease than any gargle in the sore-throat which accompanies scarlet fever.

We frequently employ in influenzas, catarrhs, and many other minor affections of the kind, inhalations of the vapour of hot water or mucillaginous infusions, combined with a little hyosciamus or conium, and have generally found that they immediately and effectually overcome, by their soothing effects upon the exhalent vessels of the mucous membrane of the air channels, the cough, which is usually dependent upon irritation in those parts; and also the sore-throat, inflammation of tonsils, and other troublesome attendants of a severe cold. These simple means, we have reason to believe, by quickly subduing irritation in the bronchial mucous membrane, have oftentimes prevented the development of tubercular disease. Public speakers, who are liable to hoarseness, proceeding from relaxation of the chordæ vocales, or muscles of the organ of voice, will obtain immediate relief from anodyne inhalations. These local applications mitigate irritation precisely on the same principle as do fomentations applied on the surface of the body, which, it is known, are frequently more efficacious in restoring healthy action than any other means.

Dr. Coxe, in a work on "Diseases of the Respiratory Organs," remarks, "I have found medicated inhalations peculiarly applicable in many complaints of the larynx, trachea, bronchi, and lungs; and the value and

efficacy really belonging to this remedial measure may, to a certain extent, be estimated from the fact, that in every case in which I have employed it, not only was the disease of many years duration, but the long-continued trial of the various remedies generally recommended, and upon whose curative powers the most experienced of our profession almost solely depend, had proved entirely ineffectual." Dr. Coxe states, that "the first case in which I used inhalations was upon myself, and it may not be amiss to state that for years I had given a fair and ample trial to all the remedies which were suggested by many of the most experienced American and French physicians, without being able to effect more than an alleviation of some of the most distressing symptoms attendant upon a chronic disease of the larynx. Even this alleviation could only be finally accomplished by abandoning the practice of my profession, and calling into requisition the advantages of sea-voyages, a long residence in warm climates, in conjunction with such other means as were considered appropriate." Dr. Coxe adds, by regularly pursuing a course of treatment (inhalation), that he succeeded in completely curing himself, and that he is, at the period of his writing, in the enjoyment of excellent health, and enabled to attend to the duties of an active life.

Dr. Coxe relates several cases of asthma, bronchitis, and consumption, which were cured by inhalations; among the latter is included a physician of extensive experience, now practising at New York. Dr. Coxe

concludes by saying, " The fact of the curative powers of medicated inhalations I now consider well established, and those who, labouring under any diseases of the respiratory organs, are generally made to depend upon the uncertain effects of sea-voyages and change of climate, however inconvenient such measures may be, for a probable restoration to health, after a long-continued, though most frequently inefficacious treatment, have certainly a right to require from their medical advisers that the efficacy of medical inhalation should be faithfully and fully tried in their cases."

Dr. Eberle, in his work on " Therapeutics," remarks that the " inhalations of aëriform fluids may be employed to great advantage in the treatment of pulmonic disease, for by this method we are enabled to make direct impressions upon the respiratory organs, a circumstance which experience has shewn to be of the highest importance in many diseases to which these organs are liable."

Dr. Beddoes, in an able treatise on inhalation of medicated vapours, thus describes the effect of oxygen in asthma:—" No sooner does it touch the lungs than the livid colour of the countenance disappears, the laborious respiration ceases, and the functions of all the thoracic organs go on easily and pleasantly again." Dr. Beddoes recommends a trial of oxygen in consumption, and expresses his decided conviction that by inhalation alone will its fatality be diminished. Fourcroy,

Withering, Muhry, Caillé, and others, have borne testimony to the value of oxygen, and also nitrous gas. Our own observations on the use of oxygen do not permit us to join in these commendations, but we have occasionally found the vapour of nitrous gas very beneficial in hooping-cough. The gas may easily be obtained by placing a small vessel in a sand-bath, and pouring into it half an ounce of sulphuric acid, and adding, at short intervals, a small quantity of powdered nitrate of potash. By these means the room will be very quickly filled with the nitrous vapour. It is necessary when using any of the gases that every aperture through which they might escape be closely stopped.

Dr. Rush, of Philadelphia, in his work on "Diseases of the Chest," observes, in reference to inhalation, that "too much cannot be said in favour of this simple system of conveying remedies. I have frequently seen patients snatched from the jaws of death by it. Whether all the beneficial effects, that may justly be considered possible to result from the use of the inhaler, either as a preventive or curative agent, will be realised, must be determined by future observation; but it is to be hoped that the general want of success which attends the present mode of treating pulmonic disease, will induce medical men to give a fair and full trial to a remedial measure, which appears so well calculated to effect a great amount of good."

Dr. J. Bennett, in an able treatise on Consumption,

has recorded his opinion that "vapour is the most reasonable and valuable mode of applying remedies in diseases of the respiratory organs."

Baron van Swieten, in his learned annotations on Boërhave, remarks, in the article "Consumption," "It is certain that steams and vapours drawn in with the air in respiration may be of use, as they everywhere come in contact with the whole aërial cavity of the lungs; and thus remedies may be applied, according to the various conditions of the disease."

Maygrier, Dupuytren, Louis, Bayle, Rullin, Delpit, Lisfranc, and Laennec have contributed in the "Dictionnaire des Sciences Medicales," and other foreign publications, several valuable and interesting essays upon the beneficial effects of medicated inhalations in pulmonary and other diseases. Laennec, from observing the good results produced by consumptive patients inhaling a marine atmosphere, established a ward in the Clinical Hospital at Paris, in which an artificial sea-air was kept up by means of fresh sea-weed. Twelve consumptive patients were subjected to this treatment, in all of whom the disease remained stationary; and in some the emaciation and hectic were sensibly lessened. But, from the difficulty of procuring a sufficient supply of fresh sea-weed from the coast, these experiments were not fully carried out; and it is as unfortunate as it is extraordinary, that the powers of iodine (a preparation of sea-weed) should have been so unaccountably overlooked by this great pathologist.

Dr. Pearson, late physician to the Lock Hospital, thus alludes to the inhalations of æther: "It abates the hectic fever, checks the night sweats, removes the difficulty of breathing, and greatly improves the smell, colour, and qualities of the expectorated matter. Patients who have inhaled it two or three times, find it so grateful to their feelings, that they are disposed to have recourse to it too often, and cannot readily be prevailed upon to lay it aside, when it is no longer necessary."

Dr. Eberle says, that "sulphuric æther is a remedy of considerable value in certain affections of the respiratory organs, in dyspnæa depending on a spasmodic condition of the pulmonary system. I have frequently derived very great benefit from the inhalation of the vapour of æther, in cases of asthma, where all other remedies had failed."

In our own practice, sulphuric æther has proved a most efficient remedy in allaying severe oppression at the chest, and spasmodic difficulty of breathing, especially when combined with about three parts of balsam of tolu, and a few drops of the juice of belladonna. When thus prescribed, we have scarcely witnessed an instance in which asthma, even in its most aggravated form, has not been most materially relieved both in the paroxysms and intervals. When the object is to remove viscid phlegm, and prevent its formation, or to overcome spasmodic constriction, æther may be advantageously impregnated with ipecacuanha, or squills, which, by exciting the tracheal or pulmonary exhalent

vessels to secretion, produce free and easy expectoration. When ipecacuanha is administered as an emetic (which is desirable in some cases of asthma, characterised by a congested state of the mucous surface of the lungs; by obstruction of the bronchial tubes, from an accumulation of phlegm; or by a torpid state of the liver and biliary apparatus), this remedy does not, by inhalation, cause that prostration of strength and disturbance of the system which usually follow from taking it by the stomach; and, at the same time, it exerts a peculiarly beneficial topical effect.

As the functions of the stomach are not interfered with in this mode of administering expectorant medicines, we have the advantage of being enabled to exhibit, simultaneously, such remedies as are calculated to improve that impaired state of the general health which usually accompanies asthma and other chronic coughs.

Ipecacuanha may be given in the form of vapour, by infusing from ten to thirty grains of the powder in boiling water for ten minutes, and then pouring it into the inhaler; but the wine is the more certain and convenient preparation; when intended as an expectorant, from ten to forty drops should be added to the fluid; as an emetic, from six to twelve drachms.

The inhalation of the gums and balsamic resins, more especially galbanum and ammoniacum, are highly useful by their stimulating effects on the pulmonary secretion, in softening and ameliorating asthmatic and other tedious chronic coughs. The best way of

administering these remedies is to rub them down in water, with the addition of a little powdered gum arabic, or starch, by which the oil and resin, on which their efficacy depends, are readily suspended; they should be employed directly after being mixed, for when kept the resin is apt to separate. The quantity used at one time should contain from half a drachm to a drachm and a half of the gums.

The solution of balsam copaiba (which acts specifically upon all the mucous surfaces) combined with balsam of tolu, or camphor, is a remedy of great value in chronic, asthmatic, and bronchial complaints, by promoting expectoration and removing difficulty of breathing.

M. Desportes successfully employed inhalations of Hydrocyanic Acid, in several diseases of the respiratory apparatus. We have often observed this remedy afford speedy and effectual relief in hooping cough and nervous asthma, both when administered by deglutition and in the form of vapour; it is also highly useful, by its powerful soothing effects upon the nervous system, in controlling the action of the heart, when accelerated by functional derangement.

The quantity of hydrocyanic acid which we use for a dose, varies from one to five drops—Scheele's strength. On account of the extreme volatility of hydrocyanic acid, we usually prescribe it in about an ounce of water, and direct that, instead of adding the whole quantity at one time, it should be divided into two

parts, one of which is to be introduced into the inhaler at the commencement of inhalation, and the remainder a few minutes afterwards. Should the whole quantity be used at once, the fluid might be too potently impregnated at first, and afterwards insufficiently so. When using hydrocyanic acid, or other remedies which very quickly fly off by evaporation, the temperature of the fluid should seldom exceed 110° or 120° Fahr.

Kortum and Hufeland (Hufel. Journ. 1827), have directed the attention of the profession to the possibility of consumptive patients deriving benefit from those sorts of gas which arise from natural mineral waters. Zaegel (Hufel. Journ. 1827, fasc. 5) has narrated cases in which he employed these gases with temporary benefit.

Dr. Bödtcher, of Copenhagen, has published some interesting observations on the efficacy of camphorated vapours in complaints of the air-passages; Raspail has also strongly recommended the use of camphor in nervous and spasmodic affections of the air-passages, the patient taking it powdered, as snuff, or respiring its vapour; small pieces of camphor being enclosed in a straw, or quill, the ends closed with cotton-wool, the tube then placed in the mouth, and the breath drawn through it. Dr. Harwood speaks highly of the inhalations of ammonia and camphor, employed with a temperature of about 100°; which are frequently very useful in relieving distressing symptoms, and in promoting the cure of some affections of the fauces, the larynx, and trachea, among which the most common are

hoarseness and loss of voice; their benefit arising either from acting directly on the part affected, or from communicating their influence along a limited extent of certain nerves of the throat, by a sympathetic action. On other occasions, by suitably diminishing the stimulus of these inhalations, their influence may be safely extended to more remote parts of the pulmonary nervous system; and hence in some chronic complaints of the chest, in elderly persons, much benefit has attended the addition of a little ammonia to ammoniacum, or other expectorants, with a view to arouse and augment nervous power in the lungs, in consequence of this being so far diminished, as to render the removal of phlegm from the air passages very difficult.

Sir A. Crichton, in an "Account of some experiments made with the vapour of boiling Tar, in the cure of pulmonary consumption;" after detailing various cases which had come under his treatment, makes the following remarks:—"It must be evident that the tar fumigation, though most completely successful in some of them, did not produce the same good effects in all; but, on the other hand, the very great relief which every patient experienced at first from it, particularly in the diminution of cough, expectoration, and fever, is a fact which ought to encourage us to multiply the trials of this remedy as far as possible. * * * The tar vapour seems to have healed the ulcers, and removed the inflammation of the tubercles, in the greater number of cases, but I do not believe it produces the absorption of

the tubercles themselves. * * * At that period when the cough, expectoration, and hectic fever are greatly subdued by the influence of the tar fumigation, it seems to me often injudicious to continue it longer, or at least, in so strong a degree as before. Notwithstanding the great power of this means of cure, I never employed it quite alone, but at the same time prescribed internal remedies, such as the nature and urgency of the symptoms seemed to require; but these have been the same as every practical physician has recommended in similar cases."

Since the introduction of tar, by Sir A. Crichton, in the year 1817, numerous trials of it have been made by Lazaretto, Hufeland, Dr. Morton of Philadelphia, Dr. Neumann of Berlin, and many others, all of whom are sceptical of its value as a *curative* agent in pulmonic diseases, but believe it capable of diminishing the night sweats, the expectoration, and hectic fever.

The mode of using the tar preparation consists in boiling some common tar, and adding to each pound from one to two ounces of the carbonate of potash—to destroy the empyreumatic acid—a small quantity of this is put over a spirit lamp, and by thus disengaging the volatile part of the tar, which consists of an invisible vapour, the air of the apartment soon becomes impregnated.

Inhalations of Creosote, a preparation of tar, were extensively tried by Dr. Elliotson a few years ago, but were speedily discontinued as being a remedy, of little,

or no value. The quantity used at each inhalation is from four to six drops, mixed in some mucilaginous fluid.

Dr. Hastings has very recently recommended the inhalation and internal use of that species of tar, or naphtha, termed pyro-acetic spirit, which is obtained by the destructive distillation of an acetate, generally of lead or lime. Dr. Hastings states that considerable "benefit resulted from the inhalations, in lessening the difficulty of breathing in the most advanced cases, in rendering muscular efforts less painful and fatiguing, and in the general alleviation of all those symptoms which distress the consumptive patient. The expectoration is not unfrequently rather increased immediately after the inhalation of naphtha, but the cough has changed for one of a milder character. It may be employed several times in the day, unless it produces nausea and sickness, when its use should be suspended; and on its being resumed in such cases, it should be applied for a shorter period. When there is spitting of blood its use is not admissible."

We have employed tar, creosote, and naphtha, in a great number of cases of pulmonary consumption with the utmost caution and perseverance, and in exact accordance with the directions enforced by their respective advocates, as to quantity and quality, but without deriving the beneficial effects which have been attributed to them, and we believe their efficacy is of very limited applicability, and refers only to some few phenomena and effects of the disease.

Dr. Bennet, in his work intitled "Theatrum Tabidorum" (chap. De Halituum et Suffituum), records several cases of pulmonary disease successfully treated by inhalations of various gases and watery vapours, with accounts of the fumigating apparatus, and receipts for the remedies.

Dr. Cottereau, of Paris, has communicated, in the "Journal Hebdomedaire" and the "Arch. Gen. de Medécine," for 1830, several highly important cases of pulmonary consumption, in which perfect recovery ensued under the use of Chlorine inhalations. Mr. John Murray, of Dublin, in a most interesting and able work on pulmonary consumption, has also narrated numerous cases of pulmonic disease which had been cured by the same remedy. Dr. Elliotson, in the "Lancet," No. 402, observes, in his admirable lectures, that he has seen many cases of tuberculous consumption and diseases of the air-passages in which the more distressing symptoms were quickly relieved by the inhalation of chlorine; but hesitates to give a decided opinion of its curative effects until he has made further trials of it. Dr. Elliotson at the same time remarks, that the medical profession have been much to blame for neglecting the inhalation of various substances, and allowing their patients to die under the old "jog-trot" system, well established as unsuccessful; and that the duty they owe to themselves and their patients demands that they should not persist in affording alleviations only, when there was the slightest possibility

of accomplishing more good than before by any new means." Dr. Elliotson adds, that "it shews a very narrow mind to set one's face against attempts at improvement; and I, therefore, give credit to all my medical brethren who suggest anything new, and still more to those who make exertion to carry such things into effect."

Chlorine is a simple substance, consisting of the gas which is given off by the action of muriatic acid on the peroxide of manganese. It was discovered by Scheele in 1774, but was not medicinally employed until the year 1804, when it was accidentally noticed that many of those persons engaged in bleaching manufactories, who had been subject to complaints of the lungs and air passages, were restored to health by inhaling the fumes of chlorine, which are continually evolved in the process of bleaching. Gannal (vide "Journ. Complem. des Sciences Médicales," Sept., 1828), an eminent pharmacien of Paris, in consequence of observing these effects, constructed an apparatus, by which chlorine was applied to the respiratory passages; and, in conjunction with Dr. Cottereau, administered this remedy with the most extraordinary success in diseases affecting those organs.

From very extensive trials of chlorine, we are fully convinced that this remedy deserves to be ranked among the most valuable of our therapeutic agents, and we feel justified, from the results of a long and successful practice, in most confidently asserting that chlorine has

not only effected the absorption of tuberculous deposits, but cured the more advanced stages, in which the general symptoms and stethoscopic sounds of the chest have clearly denoted the existence of pulmonary excavations. This assertion is not mere hypothesis, but is founded on as clear and incontrovertible evidence as any fact in medicine is capable of being demonstrated.

We are well aware that a majority of the profession do not admit the possibility of curing pulmonary consumption, more especially after ulceration has commenced; but dissection has proved the incorrectness of these views. Pathological anatomy has clearly shewn that certain remedies, directly applied to these ulcers, cause cicatrisation to follow—that is, a process of contraction, in which they are closed and united, by being surrounded by a fibrous or semi-cartilaginous membrane; or by becoming indurated and converted into concrete deposits; thus the cavities become obliterated, and are prevented from making further progress or causing inconvenience.

Laennec has detailed many well-marked cases of pulmonary consumption in patients who had died from other causes, in whom tuberculous excavations were shewn, by *post mortem* examinations, to have existed, and been cured by the formation of new membranes; the existence of which produced no symptoms or alterations in the general health to denote their existence.

Cruveilheir has mentioned this process, as being capable of suspending the progress of consumption, and there is now in the museum of Dr. Lizars, of Edinburgh, the right lung of a former patient entirely cicatrised, who perfectly recovered from the pulmonary disease, and died many years afterwards, from typhus fever. Dr. Williams, physician to the University College Hospital ("Medical Times," No. 230), observes, many persons are set down as quacks if they utter the words "cure of consumption," and that if a case does recover, then it is said it could not be consumption; but the result of many hundred *post mortem* examinations has convinced him there is much to justify the hope, that tuberculous excavations may be arrested by being converted into concrete deposits. M. Baudet states, that in one hundred and ninety-seven autopsies, promiscuously taken, he found ten instances in which cicatrisation existed in the lungs, without the presence of tubercles; and in eight cases, one or more cavities were discovered in different stages of cicatrisation. M. Andral, Sir James Clark, Dr. Carswell, and numerous other modern pathologists have published examples of the healing of tuberculous ulcers, and the correctness of these opinions will, no doubt, very shortly be generally admitted.

The solution of chlorine is the pure gas held in solution by distilled water, and is the form we generally employ. The quantity used at a time varies from six to thirty drops, depending on the peculiarities of the

case. We generally combine it with a sedative, either hyosciamus, conium, or belladonna. It is incompatible with iodine or hydrocyanic acid.

Chlorine may also be used by placing a very small quantity of the chloride of soda or lime in a common saucer, floating on hot water; or mixing together in some vessel common salt, peroxide of manganese, and diluted sulphuric acid, and directing the patient to breathe the gas evolved.

The application of chlorine, when properly managed, is unattended with the least inconvenience, risk, or unpleasant effect; but in no case ought it to be employed except under medical superintendence.

We hesitate not to express our firm conviction that, when the inhalation of chlorine shall have become more generally practised, and its curative effects impartially investigated, that it will universally be admitted, if not a specific in pulmonary consumption, very nearly approaching to it.

The profession owe a debt of gratitude to Dr. Murray, of Belfast, and Sir Charles Scudamore, for the introduction of inhalations of Iodine, as a remedy in tuberculous consumption, and other diseases of the lungs and air-passages. This highly valuable and important remedy was first suggested by Dr. Murray, in the year 1829, in his excellent treatise on Inhalation and Animal Heat; and, almost simultaneously, by Sir Charles Scudamore, in a work entitled, " Cases illustrative of the Efficacy of various Medicines, administered

by Inhalation, in Pulmonary Consumption, certain Morbid States of the Trachea and Bronchial Tubes, attended with distressing Cough, and in Asthma." That the results of this mode of treatment have been equally successful since the period of the above "Cases" being published, will be apparent from the subjoined observations of the Doctor in the "Lancet" for 1841-42:—

"It is now fourteen years since I was led to make trial of iodine, in the form of inhalation, as being a medicine highly capable of stimulating the absorbents of the lungs, which are not few, to remove tubercular matter; of inducing a healing process in a cavity when formed; and of correcting the morbid action of the bronchial mucous membrane. Experience has amply justified my recommendation of this treatment, and I have had the happiness of succeeding in very numerous cases, in which, according to all my former experience, with the old methods of practice I must have failed. It cannot be the reproach of any treatment that it should fail in the worst cases,—those which are either become incurable from long neglect, or from their originally inveterate nature; but I can assert with truth that, even when the case is too urgent to admit of success, certain relief will be afforded. It has been sometimes called a merely local treatment,—and when it is so, how much deduction would be made from its importance? But even this criticism is not just. The inhalation acts on the whole system, as I have had proof of, by witnessing, even inconveniently, the constitutional effects of iodine;

but to this admission, let me add, such disagreement has not happened in so large a proportion of instances as one in a hundred. When I deliberately affirm this as a truth, surely the most timid cannot shrink from the remedy. What medicine is there, of any power, which does not occasionally disagree, in particular idiosyncracies of constitution?

"I cannot refrain from remarking, that some are so bigoted to their experience and old methods of practice (consecrated by time, but certainly not recommended by success), that they repel the introduction of what is new, especially when the remedy requires much watchfulness of its action in order to insure its good results. Great perseverance, also, is necessary; nor can this appear remarkable, if we reflect upon the important and difficult nature of the work to be accomplished,—the removal of tubercular matter from the lungs by means of absorption; the healing of an excavation; the relief and cure of bronchial disease; and, lastly, a change to be effected in the system—in the whole mass of the blood. It is true, that our best and most anxious efforts may frequently be doomed to meet with pain and disappointment, but the satisfaction of the occasional success with which we may be rewarded will be proportionably gratifying; and in those instances where the inveteracy of the disease will not permit success, we should assure ourselves conscientiously that we have done all in our power to obtain it."

Dr. Harwood, Physician to the Hastings Dispensary,

in his able treatise on "Diseases of the Throat and Chest," remarks,—"Although I am unable to speak, from my own observation, of the curative effects of iodine in consumption, when employed independently of other methods of treatment, I am happy to be able to state, that its careful use in combination with them, has occasionally been attended with very satisfactory results. Thus, amongst other less decided cases, in instances in which the symptoms, and sounds of the chest, as manifested by the use of the stethoscope and by percussion, have appeared to other physicians, with myself, to prove the existence of tubercles of the lungs, the patients have lost all indication of existing disease. At least, I may observe, that during a long, and, at present, uncertain period, a quiescent state in the diseased structure of the lungs, has followed the use of these combined means; and, with the general evidences of restored health, great improvement has also taken place in the sounds of the chest,—a state which I presume may be regarded as that of recovery. And I have additional satisfaction in being able to add, that the same favourable results, have succeeded, the continued employment of these measures, even when suppuration and other symptoms, as distinctly the result of pulmonary excavations, co-existent with tubercles, have been present."

Inhalations of iodine have been recommended also, by Drs. Morton, Thompson, Murray, Burton, Ryan, Baron, Smythe, Davidson, and a host of other well-known practitioners, who have contributed in the medical

periodicals, and various published works, numerous cases of consumption, bronchitis, laryngitis, and other diseases of the respiratory organs, in which the curative effects of this remedy have been most unequivocally displayed.

Our own observations of the remedial influence of iodine, fully coincide with the above authorities. A long and successful practice has fully demonstrated that iodine, by acting as a salutary stimulus upon, and augmenting the action of, the absorbing vessels of the lungs, has the same decided power of removing tuberculous deposits in the lungs, and cicatrising cavities, as it is universally admitted to possess in dispersing and healing scrofulous enlargements and ulcers, situated in other parts of the system.

It was from observing the very decided effects of iodine in scrofulous diseases—for we hold with Sir James Clark, Dr. Carswell, Dr. Graves, Andral, and other modern pathologists, that consumption is closely connected with scrofula—that we were first induced, now many years since, to test its efficacy in tubercular disease, in the ordinary mode of administering remedies; but we soon discovered that it operated too powerfully on the stomach, to admit of being employed a sufficient length of time to produce a permanent beneficial effect. This objection we have found completely overcome in the direct application of iodine to the lungs themselves, by inhalation, for by this means the functions of the stomach are not in the least degree interfered with; and

thus, while remedies are being adopted to correct local morbid action, such medicines as are calculated to augment the effects desired, by promoting the general power, can at the same time be administered with the greatest advantage; and also a supporting diet, in more adequate proportion to the requirements of the system than could otherwise be received by the stomach.

We have found the following formula well adapted for the generality of pulmonary diseases. Take—

The concentrated solution of iodine and iodide of potassium (Lugol.) . . .	Six to thirty drops
Distilled water	One ounce

and make into a mixture, to be added to eight or ten ounces of hot water, the steam of which is to be inhaled two or three times a day.

But, however extensive the application of the above recipe may be, it must be remembered that iodine requires, as every other remedy does, to be materially modified by the peculiarities of individuals, and the circumstances which may take place during its employment. A heedless perseverance in any medicament, if not judiciously administered, will often create more mischief, and produce more suffering than the disease which has been attempted to be relieved; hence the absurdity of supposing that any nostrum, whatsoever, can prove a cure for every species of a particular disease, much less for the variety of forms of disease in general. The symptoms of pulmonary, and other diseases, are too numerous, and too dissimilar in their nature, to admit of

the use of any specific remedy, for every particular case is so much modified by age, sex, habit of life, climate, food, and a variety of other causes, that its treatment cannot be made a matter of prescription; every case becomes in reality a study in itself, and the skill of the practitioner can only be fully displayed by adapting his treatment to the varying condition of his patient.

The application of the following liniment materially aids the operation of inhalations of iodine, and is a valuable auxilliary when a quick action is desirable.

Take—

Tincture of iodine	One drachm
Compound soap liniment	One ounce
Acetic solution of cantharides . . .	One drachm

mix, and make into a liniment.

The beneficial effects of the above application may be partly attributed to its acting as a rubefacient, which, by exciting the sensibility, or supply of nervous power, and the afflux of blood to the surface, consequently lessens both in contiguous regions; and partly to the iodine being absorbed, and so operating in concert with the inhalations as a direct stimulus on the mucous surfaces of the air-passages and lungs. The liniment may be applied to the throat, or those localities of the chest where disease is indicated; and when it is advisable that the surface of the skin should be vesicated, this object may be accomplished by increasing the quantity of the solution of cantharides, which produces a blister much more speedily and effectually than the common blistering plaister. But

conceiving, as we do, that consumption essentially arises from general constitutional weakness, and nervous susceptibility, we rarely employ vesications, unless it be in acute cases, where the symptoms are of an unusually severe and urgent character; for we are well convinced that, although such discharges may temporarily relieve the patient, they most frequently conduce to depress the vital power, and thereby favour tubercular development.

Dry cupping, which is unattended by any weakening discharge, is a remedy of great value in the treatment of consumption, asthma, and other pectoral diseases. The operation is performed with a cupping-glass, the air within the cavity of which is exhausted by a syringe, or rarefied by the flame of a small spirit-lamp; when the mouth of the glass is placed on the surface of the skin, the rarefied air in it becomes condensed as it cools, and the glass is forced down on the skin, drawing in a quantity of the integuments, and a considerable suction of blood, from the internal parts over which it is applied, then takes place; and thus the blood may be determined to the extremities or other regions, without diminishing the mass of the fluid. The glasses are allowed to remain on the surface for about a minute, and are re-applied three or four times, as occasion requires. The operation, if properly managed, is unaccompanied with risk or pain; and the difficulty of breathing, thoracic pains, and other urgent local symptoms, are much more quickly and permanently relieved, than by bleedings or vesications.

We may here remark, that we believe the foundation of consumption is oftentimes laid by the too great *abstraction of blood.* It is no uncommon thing to meet with young people who have been bled, purged, and salivated, for some imaginary inflammatory affection, to the utter destruction of the general powers of the system, and who, after a life of prolonged misery and suffering, have eventually sunk under tuberculous disease. Even in inflammatory cases, it is, in our opinion, a great mistake to suppose that it is necessary to abstract such large quantities of blood, or to bleed to such an extent as to occasion syncope, in order to check disease. Every day's experience has shewn us the evil results of this "bold" line of practice. With respect to the employment of venesection in phthisical cases, we agree with Laennec, who observes, "Bleeding can neither prevent the formation of tubercles, nor cure them when formed. It ought never to be employed in the treatment of consumption, except to remove inflammation, or active determinations of blood, with which disease may be complicated. Beyond this, its operation can only tend to an useless loss of strength." Our great object should be, while endeavouring to correct the local morbid action, not to reduce the strength by these or other excessive drains upon the system, but to augment the constitutional power, and overcome nervous irritability by the judicious administration of tonics, and the allowance of generous diet, with a moderate quantity of good beer or wine. It is only by

such treatment, aided by quietude, proper clothing, and pure air the general health is to be improved, the absorption of tubercles promoted, and the tendency of fresh depositions counteracted—hic opus, hic labor.

But it is necessary to add, that the beneficial effects of tonics depend upon their mode of administration, and they ought not to be given as long as the pulse is strongly agitated, and, at the same time, strained and hard; the cough very frequent, short, and dry; and the respiration uncommonly accelerated and short; as long, indeed, as there exists an inflammatory state of the lungs; the alimentary canal should also be free from irritation and irregular or disordered secretions. If these points were not attended to, their employment would tend rather to decrease than augment the general power. The selection of tonics should be regulated by the character of the debility and the condition of the patient; but of this important class of remedies we have generally found the preparations of steel and bark, produce the most good in persons of feeble power, and a scrofulous or consumptive habit. The use of stimulants requires the same caution as that of tonics, and must be greatly guided by the previous habits of patients; they are especially necessary to those persons who have been habitually accustomed to their use. We have frequently observed irreparable mischief occasioned by their being suddenly and incautiously withdrawn, and have found many chronic and pulmonary diseases yield much more readily when they were carefully given.

We usually add to inhalations of iodine, a sedative, which materially assists its action, by subduing the irritation of the mucous membrane of the air-passages, and at the same time conduces to lessen that general excitement of the system, which frequently accompanies pulmonic disease. Of this class of remedies the following are the most to be depended on :—

Conium.	Lactuca.
Hyosciamus.	Belladonna.
Papaver.	Digitalis.
Acetate of Morphine.	Colchicum.

Conium (hemlock) exerts a peculiar soothing influence on the mucous surfaces, and is particularly applicable in bronchitis, laryngitis, and the incipient stages of consumption. The dose is from one to two drachms of the inspissated juice. It is compatible with all other remedies used in inhalation.

Hyosciamus (henbane) is occasionally of great service in asthma, bronchitis, and nervous coughs ; but it is apt to induce nausea, and when combined with iodine or chlorine, it does not produce the same good effects as are derived from many other anodynes. The dose of the juice is from twenty minims to a drachm and a half.

The acetate of morphine, in doses from a quarter of a grain to one grain, and the decoction of papaver (poppy), with the addition of a little distilled vinegar, are very useful in allaying cough and nervous restlessness. Inhalations of preparations of opium do not produce

costiveness or cerebral congestion, which frequently ensue when administered by the stomach. The juice of the lactuca (lettuce), by the soothing effects it exerts on the irritated or inflamed vessels of the air-passages, is often highly beneficial in bronchial irritation. The dose varies from two drachms to six drachms, which we generally add to some mucilaginous fluid.

Belladonna (nightshade) is a remedy of the highest importance in inhalation practice. In the more advanced stage of consumption, it has appeared to exert the same specific influence on tuberculous cavities, as it is well known to produce, by its external application, on scrofulous and other indolent ulcers. Belladonna is also most beneficial in hooping cough, and almost all nervous convulsive coughs. We usually commence with ten drops of the juice for a dose, and gradually increase the quantity, according to the effects produced, which must at all times be carefully watched.

We have rarely employed, with advantage, inhalations of digitalis or colchicum, in diseases of the respiratory organs, but we have found them highly serviceable in—

AFFECTIONS OF THE HEART,

which are dependent on the vital nervous power.

The brain and spinal marrow supply, and the nerves convey, the power which regulates the functions, not only of the heart, but of every organ, and tissue, that enters into the composition of the human frame. Seeing this intimate relation between distant parts, it follows

that when the nerves are inordinately acted on by emotions of the mind, or other causes, that such irritation will not be limited to their particular localities, but will be distributed throughout the whole system; hence arise *palpitations*, or those tumultuous beatings of the heart, which every person has at some time or other experienced.

The study of the nervous system, and its extraordinary influence on the animal economy, is one of the most important topics to which the attention of the practitioner can be directed; yet, notwithstanding nervous affections of the heart are so universally prevalent, and so distressing in their character, it is a remarkable fact that the most celebrated authors who have written specially on complaints of the chest, including Laennec, Hope, Bouillard, Davis, Williams, and Andral, have dismissed the subject with a few general observations; and others, like Corvisart, have not even alluded to them. It is true that in some constitutions such nervous palpitations are of an unimportant nature, and will, occasionally, voluntarily cease; but in others, such desirable results do not follow, and it is an established fact that should *functional* derangement of the heart be permitted to exist, for any lengthened period, *structural* disease of the organ frequently ensues; and thus a complaint, oftentimes trivial in itself, degenerates into one of a serious, and perhaps fatal, character.

Great tact and experience are frequently requisite in discriminating between functional and structural

disease of the heart. As the late distinguished Dr. Bayle has observed, " There are, in truth, few phenomena which puzzle, perplex, and lead into error the inexperienced (and sometimes the experienced) so much as inordinate action of the heart. He sees, or thinks he sees, some terrible cause for this tumult in the central organ of the circulation, and frames his diagnosis and prognosis accordingly. In the pride of his penetration, he renders miserable for a time his friends; and, by his direful countenance, damps the spirits of his patient: but ultimate recovery *not seldom* disappoints his fears, and the physician is mortified at his own success." Numberless cases have been presented to our notice, which, after being pronounced as incurable structural diseases of the heart, have proved to be only *symptomatic* of irritation, existing in other, and perhaps remote, regions; and have readily yielded, by a proper method of treatment being directed to the *actual* seat of disease.

These errors of diagnosis, chiefly arise from the practitioner relying on sensations or functions only, which cannot of themselves (valuable though they doubtless are as auxilliaries) guide us to a proper treatment of cardiac disease. It is only from an enlightened recognition of the operation of external agents on vital functions—of the sympathies existing between distant organs—of the relation between causes and effects—of the succession of morbid phenomena, consequent upon primary changes—that a correct diagnosis, and

a suitable and successful mode of practice can be founded.

The employment of medicated vapours, in diseases of the heart, is submitted to the notice of the profession, with a full confidence of their superiority over the ordinary practice of giving remedies by deglutition. On the present occasion, we shall only thus briefly allude to the subject; but, at an early opportunity, we purpose to extend our observations on the treatment of this interesting class of diseases.

It will be seen that we employ the *inspissated juices* of vegetable remedies—which we strongly recommend to our professional brethren, as far preferable to the common tinctures of the Pharmacopœia, from the irregularity of action and strength of which, all the hopes of the patients, and all the skill of the practitioner, are frequently defeated.

Mr. Bentley (to whom the profession is indebted for the introduction of these juices) prepares them in the following manner: — the plant being carefully selected, from its healthy character and full maturity, the leaves, stem, and (when advisable) the root, are well bruised in a marble mortar, and are then placed in a powerful wooden press. The juice thus collected is allowed to stand, in order that a deposition of feculent matter may take place, which is usually in very large

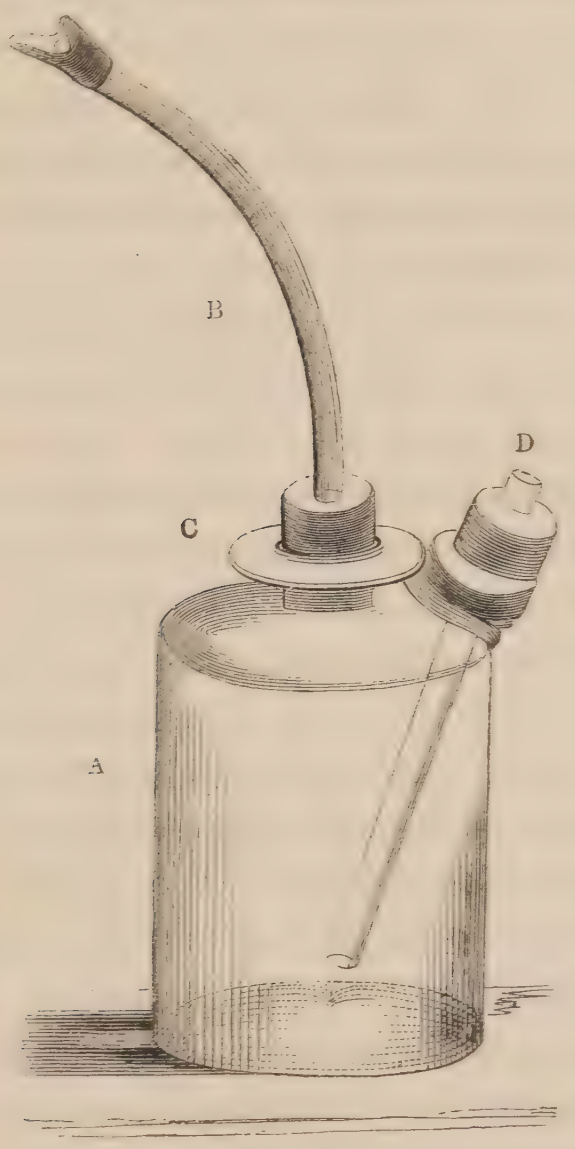
quantities in the space of twenty-four hours. Alcohol, 50° overproof, is then added, in the proportion of four fluid ounces to every sixteen fluid ounces of the juice, which is quite sufficient to render the preservation complete, and throw down any mucilage which may be mechanically suspended. After standing for twenty-four hours, the juice, being then filtered through bibulous paper (that made from wool is the best), will be found to retain the whole virtues of the plant for any length of time.

The advantages of this process consist, not only in producing preparations of uniform strength, but in decreasing the quantity of alcohol contained in the common tinctures, the stimulating effects of which are sometimes injurious in inhalations.

In consequence of the importance now attached to pneumatic remedies, many ingenious apparatuses have been proposed to convey them to the respiratory organs; but the well-founded objection which has been generally entertained to their employment, consists in the *exertion* experienced by enfeebled patients, in inhaling through a very small tube by the continued effort of *suction*. The annexed figure gives a correct idea of the Inhaler which we adopt in our practice, and it has been found admirably adapted for the purpose. By having a breathing-tube of a larger diameter, and a hollowed-out crescent-shaped mouth-piece, placed outside the mouth, all impediments to free respiration, and the exhausting efforts of suction, are surmounted;

and thus patients, however debilitated, inhale the steams with the same ease and facility as they breathe the atmospheric air.

THE INHALER.



A. A glass vessel capable of containing about twelve ounces of fluid.

B. A capacious breathing-tube, with a wide crescent-shaped mouth-piece attached.

C. The neck into which the breathing-tube is fitted.

D. A tube, open at both ends, extending from the top of the vessel to within a quarter of an inch of the bottom, to allow a free ingress of air.

The mode of using the inhaler is as follows:—detach the breathing-tube, B, from the neck, C, into which it is fitted, and pour into the inhaler about nine or ten ounces of water of the required temperature, to which add the remedy to be employed, which must be well mixed by being stirred up with a spoon; then replace the tube, and carry on respiration by inhaling the vapours through the tube, and exhaling through the nostrils. During the process of inhaling, the apparatus may be placed on a table, or on a tray resting on the bed. When it is advisable to keep the vapour at a high temperature, the inhaler should be put into a basin of hot water.

The temperature of the inhalations we employ in acute cases, varies from 120° to 140° degrees, Fahr.; but when prescribing, the practitioner must bear in mind that the temperature of the vapour is materially lessened before it enters the air-passages, by admixture with the atmospheric air, which is admitted through the ingress air-tube, D; thus the vapour of a fluid, poured into the inhaler at 140°, is actually conveyed to the lungs at 95°, which is about the healthy standard of those organs.

It is desirable that the patient should avoid all exposure for an hour or so, after inhaling at a high temperature: it is therefore the better plan to inhale at bed time, and before rising.

In chronic cases—more particularly where the patients are engaged in out-door employment—we gene-

rally recommend inhalations of 90°, which transmit the vapour to the lungs at about 57°, the temperature of the atmospheric air when at temperate point. Any increased susceptibility to cold, which might arise from inhaling at a higher temperature, is thus avoided.

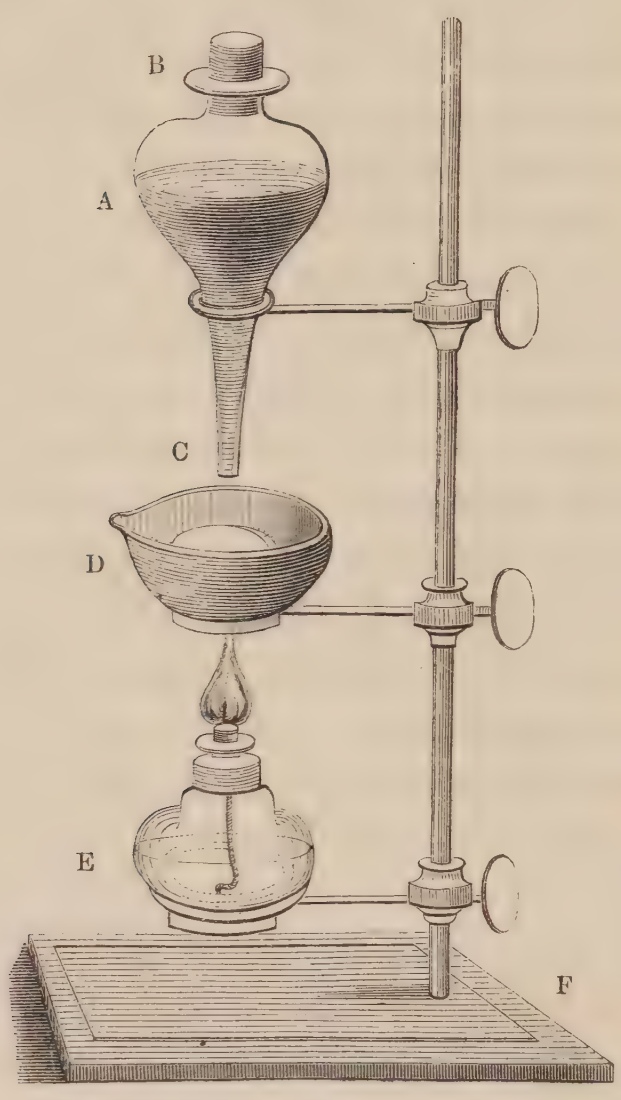
Inhalations should be used once or twice only in the course of the day, at their first employment; but when the patient has been accustomed to their use, and the effects of the remedies have been carefully watched and noted, they may be repeated three or four times daily, according to the nature of the disease and the urgency of the symptoms.

The vapour of iodine, chlorine, and other remedies, may be disseminated through the patient's apartment, for the purpose of inhalation, by means of the Diffuser, the principle of which was first suggested by Dr. Corrigan: it is extremely simple in construction, and of easy application.

The air of an apartment is so perfectly impregnated by this contrivance, that the window curtains become bleached by the action of chlorine, and tinged blue by iodine, if these be the agents employed:—hence great caution is requisite in removing the furniture before pursuing this plan of treatment. The absorption of particles diffused in the air—their admixture with the blood—and their distribution to all tissues and structures — have been clearly demonstrated by frequent experiments of MM. Magendie, Tiedmann, and Liebig, who have detected the odour of camphor, musk, and

other remedies, in the blood of animals which had been confined in an atmosphere impregnated with these substances. A certain test is afforded of the iodine vapour

THE DIFFUSER.



A. A glass funnel-shaped vessel, containing the remedy employed: at the top of which,

B., is a cork, pierced through, to admit a minute portion of atmospheric air.

C. The neck, very finely bored, from which the fluid within gradually drops into

D., a porcelain dish, containing water, which is kept boiling by

E., a spirit-lamp, placed underneath it.

F. A light metal stand, by which the apparatus is supported.

producing general effects on the system, by adding to the urine of patients who have thus inhaled it, a few drops of nitrous acid, with a solution of starch, by which a deep blue precipitate is produced, varying in appearance according to the quantity of iodine which has been employed; we have detected this precipitate after ten minutes' inhalation, which shows how quickly iodine is absorbed into the system. There can be no doubt that the Diffuser will be found an important addition to our means for carrying on inhalation, more especially in the treatment of pulmonary diseases in very young children, for whom, as a matter of course, the ordinary Inhaler is not adapted. But, while granting to the invention all the merit it deserves, we must express our opinion, that the improved Inhaler (before described) is, generally speaking, much to be preferred; for the quantity and effect of the medicated vapour, when it is thus directly conveyed to the lungs, can be much better regulated and calculated on, than when the remedy is widely dispersed through the atmosphere.

CASES

ILLUSTRATIVE OF THE EFFICACY

OF

MEDICATED INHALATIONS, &c.

The following cases, which are a faithful record of symptoms registered at the moment of observation, and of the treatment instituted for their relief—but condensed to avoid the tedium of minute and daily details—have been extracted from the Author's note book, and will further exhibit the beneficial effects of medicated inhalations in diseases of the lungs, air-passages, and heart: they will also demonstrate the importance of auscultation and percussion as a means of discriminating between functional and structural diseases of those organs, and point out the necessity of the practitioner not limiting his inquiries to any particular urgent symptoms, but equally directing his attention to the condition of the system generally, and of the various organs and their functions, by derangement of which local irritation or disease is so frequently modified and maintained.

Many other equally satisfactory cases might have been added, of more recent occurrence, but the author has deemed it the better plan to detail those only, which came under his treatment some years ago; as, by so doing, the *permanency* of the cures is more completely established.

Case I.—Consumption.—A gentleman requested me to see one of his sons on May 2nd, 1836. The boy was about thirteen years of age, of a fair complexion, and scrofulous diathesis. He had suffered for some months from constant pain and a feeling of restraint over the chest; palpitations; distressing cough, attended with copious expectoration of puriform matter, occasionally tinged with blood; dis-relish for food; great debility; night perspirations: breathing 30; animal heat 97° (ascertained by the bulb of a properly-constructed thermometer being placed under the tongue); the pulse usually beyond 100. These symptoms, which had been treated in a manner calculated to exhaust his general power—as by low diet, leeches, blisters, expectorants, &c.—appearing to become rather aggravated than relieved, my advice was sought. The complaint, it appeared, originated with spitting of blood, which occurred to the amount of about three ounces, after jumping down from a high wall, and continued in smaller quantities for a few days, and then ceased altogether. On examining the chest by the stethoscope, and by percussion, I detected well-marked pectorile-

quism, and dulness at the right collar bone, with a gurgling noise and a cavernous ring on coughing, extending downwards to the fourth rib; at the left side the respiration was imperfect, and percussion elicited a dull sound over the clavicular and sub-clavicular region, and posteriorly on the opposite par- of the same side. The heart gave no abnormal indications, though its motions were accelerated and irregular. The former medical attendant pronounced the child to have tubercles, and that the ulcerative process had commenced, and considered his recovery as hopeless. I coincided with this gentleman in his diagnosis, but not in his prognosis, or treatment. I directed that the patient should inhale chlorine and belladonna at a temperature of 120°, and take a mixture composed of sulphate of quinine and steel, with light and nutritive diet. This plan was attentively followed up, and with such success, that, in twelve days, the respiration was more natural, the cough much less troublesome, the appearance of the sputum greatly improved, and the night perspirations lessened. In another twelve days, the results were still more satisfactory: the circulation became fuller and firmer, the surface more florid, and spirits improved; and the severity of the cough and local symptoms were so much relieved by the influence of the inhalations, that my patient was enabled to sit up several hours in an arm chair, without experiencing fatigue or inconvenience; in fourteen weeks from the date of my first seeing him, his health

was quite re-established, and he has had no relapse up to this date, March, 1844.

Case II. — Consumption. — A young lady, about twenty years of age, of delicate aspect, and lymphatic temperament, consulted me, July 4th, 1838, in consequence of a very severe cough, attended with acute pains in the chest, from which she had suffered for several weeks. She had been treated by the usual remedies, but had obtained no further benefit than a mitigation of the symptoms. She was pallid, with occasional hectic flushes; much depressed in spirits; the circulation was quick, but very feeble; the cough incessant, and attended with purulent expectoration; appetite indifferent; palpitations; catamenia irregular; bowels costive; nocturnal perspirations; inspirations 32 in a minute; animal heat, 99°; very perceptible dulness on percussion at the right infra-clavicular and mammary regions, and pectoriloquism at the apex of the lung; the left side was very sonorous, with puerile respiration, and some fine mucous and sibilant râles: the action of the heart, when quickened, was accompanied by a slight *bruit de soufflet*, which disappeared so soon as that organ became quiet. I directed that the patient should be dry-cupped over the chest; and prescribed an inhalation of iodine and conium, at a temperature of 120°, and the iodine liniment, with a saline aperient mixture, and a soothing pill, composed of acetate of morphine, at bed-time:

subsequently, in consequence of her exsanguined appearance, small doses of steel and quinine, with a good, nutritious, but plain diet. Treatment on this principle was continued for ten weeks, during which period an occasional change was made in the tonic remedy, and in the quantity and frequency of the inhalations. The dry-cupping—which was had recourse to three times—materially relieved the thoracic pains; the cough and local morbid action were overcome by the influence of the inhalations; and the general health was materially improved by a perseverance in the tonics. The progress was steady and satisfactory; uterine action became perfectly re-established; and, in eighty days from the commencement of my treatment, all the symptoms were removed, and her usual state of health restored.

Case III.—Consumption.—A gentleman, aged thirty-five, a solicitor, of naturally-feeble power, and intemperate habits, consulted me, September 2nd, 1839, and stated that he had, three years previously, an attack of pulmonary inflammation, with cough and spitting of blood, for which venesection, cupping, and mercurials had been prescribed. Since that time, a constant irritating cough, attended with expectoration, had continued, which had, within the last month, so much increased as to confine him to his bed-room. A physician of some note had to this date attended him, and pronounced the case a hopeless one.

When I first saw my patient, he was pallid; much distressed, with an anxious look; suffered from a constant violent cough; and expectorated about a pint of purulent matter in the course of the day—presenting all the qualities of phthisical sputa: hectic fever prevailed to an extreme degree, and was attended with great emaciation and profuse night perspirations; pulse 100; inspirations 28; animal heat 110°; tongue much furred; diarrhœa; had lost a brother from consumption. Pectoriloquism, cavernous respiration, and a gurgling râle, in the right sub-clavicular region and in the axilla, gave conclusive evidence of the existence of ulceration in the superior lobe of the lung of that side; and dulness on percussion at the left side denoted the presence of tubercles in the left lung: the heart beat regularly, and with a natural sound, only with too great frequency. A chalk mixture, with the addition of catechu, was prescribed, and inhalations of chlorine and belladonna at 140° temperature; and subsequently, when the tongue became clean, and the secretions regular, a mixture composed of quinine and infusion of roses, with excess of acid, and a little solution of the acetate of morphine; nutritious and generous diet, with a small quantity of the stimulus he had been accustomed to. He soon experienced the beneficial effects of this mode of treatment; for, in three weeks, the cough and night perspirations had become much diminished, and the expectoration was slight and free; the excessive purgation had ceased;

strength improved; and the symptoms generally so much mitigated, that he was enabled to reach his sitting-room. At the end of eight weeks more, the cough was very slight, and of no inconvenience; the sputum very trifling, and consisted of mucus only; there were no longer night sweats, or indications of fever; and he had gained both flesh and strength, and, by wearing a respirator, could take out-of-door exercise. The patient experienced two or three slight relapses from sudden changes of temperature, and derangement of the stomach and bowels; but got perfectly well in the course of fourteen weeks from the commencement of my treatment, during which time the above remedies were steadily persevered in, with some slight modifications.

The gentleman has since paid more attention to his general health, by preserving habits of regularity and temperance; by which he has maintained a proper degree of constitutional power, and has not, at the present time (March, 1844), the slightest trace of pulmonary disease.

Case IV. — Chronic Bronchitis. — A married lady, aged forty, of fair complexion, narrow chest, and evincing naturally rather feeble power, came from Colchester to consult me, January 9th, 1840. It appeared that the lady had suffered from a chronic cough for the last nine months, and had been under medical treatment the greater portion of that time; but as no per-

ceptible diminution took place in the symptoms, she was induced, by the recommendation of a former patient, to put herself under my care. The patient being unable to give me a satisfactory account of her early symptoms, I wrote to her former medical attendant, but his statement was of little or no value, being a mere history of the treatment of the disease, which he pronounced to be chronic phthisis; he also added that he had a few years before attended one of her children who had died from the same complaint.

The patient was much reduced in flesh and strength, and complained of great pain in fetching a deep breath, and a constant irritating cough, attended with difficult expectoration of ropy and glutinous sputum; pulse 90; nights restless; digestive organs much impaired. Under each clavicle there were sibilant and crepitating râles, especially perceptible after making a deep inspiration, a general feebleness of the vesicular murmur, and a degree of dulness under the left clavicle; but there was no decided evidence of tuberculous disease. I prescribed inhalations of iodine and conium at 100°, with a tonic stomachic mixture, and the chest to be dry-cupped. Under this treatment the cough was very quickly relieved, and the expectoration diminished; the respiration became natural, and the pulse fuller and slower, and in three weeks all morbid signs had disappeared from the lungs, and the patient returned to the country convalescent. She remained quite free from bronchial irritation for two years, when she died

from scarlet fever; a post-mortem examination was permitted, and no traces of pulmonary disease were discovered.

Case V.—Palpitation and Cough, dependent upon Spinal Irritation.—A gentleman, aged forty, of rather robust appearance, but of melancholic temperament, consulted me, July 20th, 1839, with the following symptoms:—a constant hacking cough, attended with an expectoration of frothy mucus; difficulty of breathing; palpitations so severe that he was unable to lie upon the left side; looseness of the bowels, with tenderness upon pressure over both hypochondria and the epigastrium; rest disturbed by frightful dreams; sickness at stomach, more especially after taking meals. Physical examination, by percussion and the stethoscope, showed that there was no structural disease of the lungs or heart, the only abnormal sound of the latter organ being a peculiar whizzing, or, as it is termed, *bruit de diable*. Being convinced that the above symptoms were of a nervous origin, I instituted a careful examination of the spine, and upon pressing upon the fourth lumbar vertebra, my patient suddenly shrieked with pain, and vomiting almost immediately followed; this, and a subsequent examination fully assured me, that the primary cause of all this derangement was chronic inflammation of the spinal cord.

The treatment consisted in the application of leeches and dry-cupping over the region of the spine, followed

up by repeated vesications, small doses of alteratives, and an inhalation of hydrocyanic acid. Absolute rest was enjoined, and the diet to be light and nutritious.

These remedies were adopted for several weeks, with modifications, when the cough, palpitation, and diarrhœa, and the other unfavourable constitutional and local symptoms were overcome; and by the further aid of country air, gentle exercice, and the use of the shower-bath, my patient perfectly regained his usual strength and health.

Case VI.—Chronic Laryngitis.—A female servant, of feeble power, and chlorotic appearance, consulted me, in March, 1842. The symptoms were as follows—constant harassing dry cough; palpitation; great debility; total loss of voice; great tenderness by pressure, over the lower part of the larynx; the catamenia had not appeared for the last ten months, and, previous to that period, very sparingly; had been subject to the cough for the last fifteen months; and had been under the treatment of three medical men, at different times, without experiencing any permanent benefit. Physical examination did not reveal disease of the lungs or heart. I prescribed leeches to the throat, and, subsequently, preparations of steel; with inhalations of belladonna, and a liniment—composed of the acetum of cantharides, oil of terebinthinum, oil of cajeput, compound soap liniment, and oil of lemons,—to be rubbed in, just above the thyroid

cartilage, twice a day. This plan of treatment was unremittingly persevered in for seven weeks, when the cough was entirely cured, and the catamenia fully re-established: her general appearance and state of health were also materially improved. At this period, she proceeded with some friends to South Australia; and I have since ascertained that she remained without cough during the voyage, but that, a short time after her arrival at Adelaide, some of the old symptoms returned; but the attack was of very short duration, having been overcome by the inhalations—prescriptions for which I had provided her with, in case of any relapse. I have seen many cases of this kind of shorter duration, and a few of equal duration, which have been successfully treated by a steady perseverance in the above mode of treatment.

Case VII.—Chronic Bronchitis.—A young gentleman, aged twenty-three, of strumous habit, consulted me, December 1st, 1839; with constant cough, attended with expectoration of thick yellowish matter; impeded respiration; soreness of the fauces and trachea; great emaciation; pulse 87; rheumatic pains in various parts, more particularly the right knee, which was painful upon pressure, and swollen; had been suffering from these symptoms for the last four months, and had been told by his medical attendant—from whose treatment he had obtained no relief—that he was in a consumption. The physical signs were, mucous and sibilant

rattles over various parts of the chest, with occasional crepitation; but there were no decided indications of structural disease of the lungs. The treatment consisted of inhalations of iodine and conium, with a mixture of the cold infusion of sarsaparilla, with small doses of the iodide of potassium. By adopting these means, the different symptoms rapidly gave way; and, in six weeks, this patient had not only recovered from the bronchial affection, but also from those chronic rheumatic pains, which had for a lengthened period constantly tormented him.

Case VIII. — Consumption. — A young man, a groom, of delicate constitution, who was placed under my care, March 27th, 1835, related that, about a year ago, he caught cold, by sitting in a crowded theatre with damp clothes on, which was followed by severe cough, with pains at the chest and head. The medical gentleman who attended the case, bled him to faintness; which treatment it seemed rather aggravated than relieved the symptoms. The lancet was, however, again employed, and the like results ensued; subsequently he was twice blistered. After this treatment he slowly rallied, but had ever since been constantly troubled with a hacking cough, and had gradually lost flesh. At the time of his application to me, he was so debilitated as to be incapable of undergoing the least bodily exertion: complained of severe palpitations; difficulty of breathing; profuse night perspirations; constant cough,

accompanied with an expectoration, in which were discovered, by the aid of the microscope, distinct portions of globular, ragged, tuberculous matter. The countenance was anxious; the cheeks attenuated, and patched with a hectic flush; pulse varying from 100 to 110; total loss of appetite; animal heat 100°; respiration 30. Auscultation and percussion gave a cavernous rhoncus between the fourth rib and the right clavicle, with a metallic ringing, and pectoriloquy; at the left side there was dulness at the apex of the superior lobe; and there was an unusually deep depression under both clavicles, formed by the sinking in of the walls of the chest. The treatment consisted of inhalations, composed of chlorine and belladonna, with occasional dry-cupping, sustaining diet, and febrifuges; and subsequently, when the tongue became clean, and the feverish symptoms were abated, steel and quinine tonics. By these means, the more urgent symptoms were speedily relieved; and, in three months from the commencement of my treatment, natural sounds were the result of stethoscopic examination, and he was sufficiently recovered to undertake a journey to Margate, where he remained for six weeks, and had the advantage of baths at the Sea-Bathing Infirmary. He returned quite well, and re-entered the service of his former master.

Case IX.—Hooping Cough.—A lady requested me to see her male child, aged three years, of delicate

appearance, and scrofulous habit, labouring under an unusually severe attack of hooping cough. It appeared that the lady had lost two fine children from the same disease, and therefore felt unwilling that this child (whom she considered the most delicate of the family, and least capable of bearing up against the complaint) should undergo the treatment which had been so unsuccessfully adopted in the previous cases. He was pallid; the extremities cold; pulse scarcely perceptible; respiration extremely hurried; general languor and debility; the fits of coughing violent, and occurring, upon an average, every ten minutes, and sometimes followed, after great fighting for breath, by convulsions; expectoration scanty; diarrhœa; sleep restless, being constantly disturbed when he was beginning to slumber by the distressing fits of coughing. I directed that the little sufferer should inhale the vapour of nitrous gas for a quarter of an hour, three times in the day, and take small doses of an antacid mixture. Upon the third day of the employment of these remedies, the paroxysms of coughing were greatly relieved, the breathing became more natural, the rest sound, and the state of the secretions improved. This plan of treatment was steadily pursued, with some slight alterations in the times and quantity of the inhalations, for nine days, when the remedies were discontinued, not a single fit of coughing having occurred for two days previously. The state of the general health was afterwards materially improved by the use of preparations of steel and zinc, and I had the

gratification to hear, after a short continuance of these tonics, that he had never looked so well. I have notes of several analogous cases, in which the beneficial effects of nitrous gas have been equally apparent.

Case X.—Chlorosis (the Green Sickness), simulating Disease of the Heart, and Consumption.—A young lady (a governess), aged twenty-seven, of lymphatic temperament, and ex-sanguined appearance, sought my advice August 1st, 1840, complaining of constant harassing dry cough; oppression at the chest, and irregular breathing; distressing palpitations after ascending stairs, or using any exertion; catamenia suppressed for the last thirteen months; leucorrhœa; pulse 90; bowels deranged, with sickness at stomach, and occasional vomiting.

My patient had just arrived in town from an exposed and bleak part of the coast of Suffolk, where she had been residing in a clergyman's family; had been under medical treatment for the last eight months, and was considered to be labouring under aneurism of the heart, and tuberculous disease; under which supposition she had been bled, cupped, and blistered, and was now recommended to remove to the warmer temperature of London, as being better calculated for her constitution. Her relatives stated, that latterly any sudden emotion of the mind, or bodily agitation, would cause her to fall into a state of syncope, when the respiration, and action of the heart, would be scarcely perceptible, and the

pulse so small and weak, as with great difficulty to be felt; that she had remained on several occasions in an almost lifeless state for an hour at a time; that during the fits the countenance assumed a livid deadly hue, and that upon recovering, she was so exhausted as to be unable to walk alone for many hours afterwards; her appetite was depraved, and had latterly totally failed; and she was so emaciated and debilitated, that, to use her own expression, she was "worn down to a skeleton." My patient declared, with much earnestness of manner, that she well knew her case to be a hopeless one, but trusted some palliative might be prescribed to ameliorate the more painful symptoms.

The sounds elicited by auscultation and percussion clearly demonstrated that the general disturbance of the system, above described, was not dependent on the existence of pulmonary disease, and the only unnatural sound which I could discover in the heart was a transient *bruit de soufflet*, joined with a slight musical whizzing in the crural and subclavian arteries, neither of which were sufficient to denote disease of that organ. This fact I did not hesitate to communicate to her, which I had hoped would have tended to dissipate the melancholy under which she was continually suffering; but it was received with misgivings, after the decided manner in which her former medical attendant had expressed himself as to the nature and probable result of the complaint, and whom she represented to be a gentleman of great practical experience, and well acquainted with her

constitution. No stethoscopic examination had been previously made.

The history and symptoms of this case led me to believe that this derangement of the constitution originated in the uterus not properly performing its functions, and that the palpitation and cough were dependent upon a morbid irritation in that organ. Preparations of steel were prescribed, with an inhalation of hydrocyanic acid, generous diet, the use of the shower bath, and gentle exercise. This plan was pursued with great advantage until September 4th, when the catamenia were restored. This change accomplished, a marked improvement rapidly took place in her appearance, and general health, and in fifty days from the commencement of my treatment she was perfectly cured. Shortly after this my patient returned to her old quarters in Suffolk, to the no small astonishment of her quondam medical friend, and has not, up to the date of these pages going through the press, had any return of illness. The patient frequently expressed, during the above treatment, that she derived great benefit from the inhalations of hydrocyanic acid in allaying the cough and palpitations; we have frequently found this remedy a valuable auxiliary in such cases.

Case XI.—Consumption.—A young man, a publican, aged twenty-seven, of naturally good constitution, but much broken down by intemperance, consulted me, November 2nd, 1836. It appeared that he had suffered,

for the last nine months, from cough, shortness of breath, and pains at the chest; and that, having caught a severe cold by exposure to the night air, the cough had, within the last few days, much increased, and caused him suddenly to bring up half a pint of blood; being alarmed at this new symptom, he sought my advice. Although complaining for so long a period, he had not placed himself under medical treatment, but had resorted to almost all the injurious nostrums, with which our newspapers abound. He was now much wasted in flesh; very pallid, with occasional hectic flushes: the countenance anxious, with a peculiar wild expression of the eye; pulse 100; animal heat 103°; breathing short and painful; night perspirations; copious expectoration of purulent matter, streaked with blood: the sound, on percussion, very dull on the upper part of the left side; pectoriloquism at the apex of the right lung, with a cavernous sound, demonstrating the existence of an ulcer; and, from the second rib downwards, a crepitating rhoncus was perceptible. I prescribed inhalations of iodine and belladonna; a vesicating liniment to be applied to the chest; and a mixture composed of gallic acid, and Battley's sedative solution of opium. Under this treatment, the difficulty of breathing and cough were much relieved, and the spitting of blood quite removed. A combination of steel with quinine was now administered, in conjunction with the inhalations; and, at the end of five weeks from the

commencement of the treatment, my patient had so much recovered, that he declared himself to be quite well, and was unwilling to undergo further treatment; but the stethoscopic signs did not correspond with his views, and I warned him, that although the cure was progressing, it was not established. Shortly after this he decamped from the neighbourhood, and I lost sight of him until August, 1838, when I received a message from him, earnestly requesting to see me, at a distant part of the metropolis. I found him reduced to a mere shadow, in great poverty, and in the last stage of pulmonary disease, and evidently sinking fast. It appeared that, upon his former partial restoration, he had pursued a course of dissipation, which had completely destroyed his already impaired constitution, and had now been confined to his bed for the last five weeks. Although I could hold out no possible chance of recovery, I considered it my duty to alleviate as much as possible, the severity of the symptoms; and this object was more fully accomplished by sedative inhalations, than by any other palliatives I have ever used myself, or seen employed by other practitioners, in such cases. He died about a week after I saw him; and it was generally observed by his friends, that his sufferings appeared to be most materially lessened by the means adopted. I have notes of several incurable cases (for there are, as a matter of course, periods of disease in which every effort of the remedial art must be equally

unavailing and unsuccessful), in which the powers of inhalation, in mitigating the symptoms, have been most remarkably displayed.

Case XII. — Palpitations, arising from disordered stomach and liver. — A young woman, a milliner, of robust form, but nervous temperament, who consulted me, June 14th, 1841, related, that she had for several months suffered from palpitations, attended with constriction over the whole chest, and pricking pains at the præcordial region, of so severe a kind, that she was frequently obliged to sit up in the bed for several hours in the night time, being unable to bear the horizontal posture. The face was swollen, and of a deep blueish tint; she complained of a constant singing in the ears; great difficulty of breathing, more especially after walking quickly, or lifting any weight; occasional pains over the stomach and liver, and between the blade-bones; sickness; urine scanty, and high coloured, depositing a brickdust-coloured sediment; diarrhœa. Stethoscopic examination showed there was evidently no organic disease of the heart or lungs. I regarded the above symptoms as arising from functional derangement of the stomach and liver; and prescribed, at the outset, active aperients, and subsequently stomachic bitters, with antacids, mild alteratives, and inhalations of hydrocyanic acid, with strict injunctions to carefully avoid all indigestible, acescent, or flatulent kinds of food. This mode of treatment was pursued for

sixteen days, by which time a regular state of the secretions was induced, and the palpitations and other symptoms were permanently relieved. I lately attended a relative of this patient, and heard that, since this treatment, she had enjoyed a better state of health than she had ever done before.

I have notes of numerous other cases, which the limits of these pages will not permit me to append—of irritation of the digestive mucous surface, and disorder of the biliary apparatus, in which, by their extensive influence on the sympathies of the frame, and immediate connection with the vital organs of the brain, so much functional derangement of the heart has been produced, that had I relied on *general* symptoms only, they would have appeared as dependent on structural disease; but in such instances, the stethoscope has shown the non-existence of organic changes, and by tracing out the *origo et fons* of these pseudo-affections of the circulating organ, they have quickly disappeared by the employment of inhalations acting directly on the nervous sensorial power, and by having the bowels evacuated, and afterwards a healthy action of the capillaries of the mucous surfaces promoted, and followed up by vegetable tonics, and strict attention to regimen.

Case XIII.—Functional Derangement of the Heart, dependent upon the presence of Worms.—A servant-maid, aged twenty-four, of dark complexion and bilious temperament, came under my care, Sept.

4th, 1836, complaining of cough, distressing palpitations and flutterings of the heart, with sometimes a feeling as if it was compressed or grasped; a sense of anxiety; and a sinking, difficult to describe, at the pit of the stomach; sickness, emaciation, and debility; appetite voracious, and never satisfied; bowels costive, with occasional severe pains at the abdomen, which was much distended. From these symptoms, I suspected the existence of worms, and prescribed suitable remedies. In a short period, a large tape-worm (tænia osculis marginalibus) was expelled, and all the above derangement of the system was almost immediately relieved. This patient had been considered, by the surgeon of a dispensary, under whose care she had been for some considerable time, as labouring under enlargement of the heart.

Case XIV.—Chronic Cough.—A lady, aged forty, of nervous temperament, who had, at times, for four years, suffered from cough, dependent upon irritation of the trachea, consulted me, June 27th, 1835. Inhalations of conium were at first prescribed, but without producing much benefit; subsequently belladonna was substituted, and removed the cough, the cessation of which greatly improved the general health. The cough remained quiet for nearly nine months, when it returned, although in a somewhat modified form: similar inhalations were again resorted to with complete success, and the lady has been quite well since that time.

Case XV.—Chronic Cough.—An elderly man, a traveller, of weak constitution, who had been suffering under, for some years, a spasmodic cough, consulted me in September, 1839. I prescribed an inhalation of æther, ipecacuanha, and belladonna. The patient started a few days afterwards upon a journey, so that I had not an opportunity of watching the effects; but subsequently I received a communication from him, stating that the remedies had given immediate relief; and, by steadily persevering in their employment for six weeks, the cough was completely and permanently cured.

Case XVI.—Chronic Cough.—A young unmarried lady, of slight figure and delicate constitution, consulted me in December, 1836, for a severe cough, which had baffled medical treatment for ten months. She was greatly debilitated; pulse quick; slight and difficult expectoration; tongue feverish; bowels torpid. Stethoscopic examination gave no indication of pulmonary disease, but, upon pressing the trachea under the thyroid cartilage, my patient flinched, and informed me that all along there had been great tenderness at that part. It was evident to me that the case was one of chronic inflammation of the lining membrane of the trachea. The treatment consisted of the application of leeches and blisters to the throat, with saline aperients; by this means the local tenderness and the fever were very greatly relieved, and I then prescribed inhalations of

chlorine and conium. The administration of the chlorine at first caused some little difficulty of breathing, and increased the cough; but the quantity and frequency of the inhalations being reduced, these unpleasant symptoms soon subsided, and in six weeks she had quite recovered. Simultaneously with the inhalations were given preparations of steel, to improve the general health, and they fully accomplished the object intended.

Case XVII.—Asthma.—Some time since I attended a married lady, about forty years of age, who had been asthmatic for several years. On the occasion of my first visit I found her lips of a deadly hue, the extremities cold, with a clammy perspiration, and she was fighting in extreme agony for breath, as if fearing immediate suffocation; the fit lasted for about twenty minutes, and was finally relieved by a copious expectoration of puriform matter. Her friends informed me that she had been under medical treatment, but the remedies employed neither mitigated the distress or altered the condition of the disease; and as her general health, which had been previously pretty good, now visibly declined, they became anxious about the result, and were desirous that she should put herself under my treatment. I prescribed inhalations of æther, ipecacuanha, and balsam of tolu, and a very mild alterative medicinal course to improve the different functions,

which were irregularly performed. Under this plan the dislodgment of the bronchial secretion was considerably facilitated, the difficulty of breathing removed, and by steadily pursuing the treatment advised for a short period, she was cured of the complaint, and restored to a good state of health. Many other cases of different species of asthma are recorded in my Note Book, in which a similar treatment, modified according to circumstances, has been equally successful.

Case XVIII.—Chronic Nervous Cough.—A clergyman, aged fifty, of rather spare habit and melancholic temperament, consulted me, June 4th, 1839, for a severe cough, which had rendered him for some considerable time incapable of performing his professional duties. He was greatly debilitated; pulse low and intermittent; palpitations; trembling of the limbs; respiration hurried; great depression of spirits; loss of appetite; with tenderness in the situation of the transverse arch of the colon, and diarrhœa of mucous bloody stools. The respiration at both sides was weak, but there was no stethoscopic indication of organic disease of the lungs or heart. All the above severe symptoms appeared to me as originating from chronic inflammation of the intestines. Twenty leeches were applied over this region, and in a few days fifteen more, followed up by vesications; and subsequently small doses of sulphate of copper and opium, and inhalations

of hydrocyanic acid. By these remedies, the local tenderness was removed, the secretions became of a natural appearance and regular, the appetite improved, the cough completely subsided, and the general appearance and health of my patient were quite restored.

THE END.

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